Transformation: Are We on a Joint Path?

**A Monograph
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Abstract

Transformation: Are We on a Joint Path? By MAJOR Ancel B. Yarbrough II, United States Air Force, 67 pages.

Transformation is the buzzword of the new millennium for the United States military complex. The future of the Department of Defense and the individual armed services are now at stake, whether current transformational efforts stem from internal design or are necessitated by problematic funding. Senior defense officials and DOD publications routinely state that military transformation is integral to meeting future threats. This monograph determines if the independent service's transformation programs meet the future needs of the joint community. The answer is presented by demonstrating that the service transformation programs yield an extremely limited joint transformation.

The first dilemma of testing transformation programs is the lack of a doctrinal or universally accepted definition. The author used the numerous proposed definitions by advocates of both service and joint transformation and the stated goals of DOD transformation to define joint transformation. It is defined as the constructive adaptation of force structure, culture, and doctrine to achieve a new joint operational construct wherein technologies and their related concepts are incorporated to yield order of magnitude increases in joint capabilities. Joint transformation implies integration of forces and systems for a seamless application of the combined system of systems. The result is an order of magnitude increase in offensive military capability that fundamentally alters the conduct of military operations. From this definition of joint transformation, four measures of merit were developed (rapid response, scalability, survivability, and long range forced entry). The service transformation roadmaps, as produced in 2002, were evaluated in a two-part process based on these measures. First, the service roadmaps were dissected to determine which service concepts met the measures of merit. Next, these concepts were evaluated for their effect on joint capabilities. The cumulative effect of the concepts yields the possibilities of joint transformation in terms of capabilities and competencies.

The service roadmaps contain many concepts and constructs. Most of them did not meet the measures of merit and were more akin to modernization efforts. One concept, the Navy/Marine Corps concept of Ship to Objective Maneuver (STOM), was found to be service transformation but not joint transformation as it provides joint redundancy of inserting light forces. The Army concept whereby the Objective Force achieves long range forced entry of heavy forces met the measures of merit; however, the concept hinges on adequate lift assets that are not clearly delineated in the Army roadmap nor available or planned by the other services. The Air Force concepts of Global Response and Global Strike provide joint capabilities for long range forced entry of combat airpower; however, these concepts are not fully supported by current or postulated lift to sustain their presence or to insert heavy ground forces (Objective Force). It is evident that without lift reform, the joint community will have limited ability to employ the concepts that met the measures of merit.

The service transformation roadmaps of 2002 yield an uncertain joint transformation. The DOD should adopt the proposed definition and measures of merit in order to focus service transformational efforts. The service concepts that met the requirements for long range forced entry (Objective Force, Global Response and Global Strike) should be incorporated into a joint vision of transformation and then appropriately supported with lift reform. The emphasis of transformation must shift from service capabilities to combined joint capabilities in order to ensure synergy of effort. The services are far more likely to meet future joint needs when the vision to unify efforts and obtain a true joint transformation is established.

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CHAPTER ONE

INTRODUCTION

> The whole of military activity must therefore relate directly or
> indirectly to the engagement. The end for which a soldier is
> recruited, clothed, armed, and trained, the whole object of his
> sleeping, eating, drinking and marching is simply that he should
> fight at the right place and the right time.[1]

Carl von Clausewitz

Transformation is the buzzword of the new millennium for the United States military
complex. The future of the Department of Defense (DOD) and the individual armed services are
now at stake, whether current transformational efforts stem from internal design or are
necessitated by problematic funding. As the country relies on the DOD for strategic deterrence
and decisive combat, each armed service must ensure that its transformation conforms to the
desires and future requirements of the DOD. The purpose of the U.S. Armed Forces is to protect
and advance U.S. national interests and, if deterrence fails, to defeat decisively threats to those
interests.[2] Hence, determining the viability of the independent service's current transformation
programs and plans as they meld into a transformed joint community dependent on synergistic
capabilities merits serious study. At the heart of the matter is whether a true joint transformation
will take place and whether joint soldiers, airman, seaman, marines, and civilians will arrive at
the right place and the right time to wage future decisive battles. This monograph seeks to
determine if the independent service's transformation programs meet the future needs of the joint
community.

One need not look any further than current U.S. operations in Afghanistan to discern that
transformation is already taking place in real-time. According to Air Force General Jim Smith,

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[1] Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, New
Jersey: Princeton University Press, 1976), 95.

[2] Department of Defense, *2001 Quadrennial Defense Review Report (QDR*) (Washington, D.C.,
2001), 2.

Deputy commander at the Joint Warfighting Center, unlike traditional U.S. scenarios there are no lines on the map to delineate where the Marines, Army, and Air Force fight independently.[3] Current battlespace transformation is akin to Napoleon Bonaparte's integration of cavalry, infantry, and artillery in a true combined arms attack for their synergistic effect; transformation has not shown up so readily on the battlefield since the German blitzkrieg offensives of World War II. Airmen now routinely support Special Forces (SF) with precision weaponry without an edict or definition of transformation. If necessity is truly the mother of all invention, it follows that battlespace necessity drives the need for joint transformation. While the transformation of combat may be somewhat simplistic in regards to Afghanistan, transformation to meet future requirements is a riskier business. Just as the U.S. military transformed after World War II to a strategically focused nuclear deterrent force, it must again focus on the capabilities required to deter, coerce, or defeat future threats. The vital step in ensuring joint synergistic capabilities rather than service-centric priorities are at the top of each service's transformation policy is determining whether the service's transformation programs and plans meet future threats.

So why should the services transform? The DOD Transformation Study Group, organized to tackle the framework of transformation, assessed three reasons for joint transformation: 1) Preserve current strengths in danger of eroding in the face of new challenges; 2) Meet new threat and environments; 3) Exploit new opportunities, e.g., those offered by the revolution in information technologies.[4] In essence, the group cited threats and security challenges differing from the Cold War paradigm necessitating organizational adaptation. Furthermore, the 2001 Quadrennial Defense Review (QDR) sounded the need for changing the force structure from one

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[3] Linda D. Kozaryn, "Demystifying Transformation", [Online] Available http://www.defenselink.mil/news/Aug2002/n08142002_200208141.html, August 24, 2002.

[4] Department of Defense, Transformation Study Group, *Transforming Military Operational Capabilities*, (Washington, D.C., 2001), 5.

designed to counter known threats to one designed to achieve defined capabilities.[5] A capabilities based force is designed for a myriad of threats, some known and others postulated, wherein the actor may not be known but the need to counter that type of threat persists.[6] The capabilities based force is intended to replace the legacy force designed around forward basing against the Cold War Iron Curtain European threat. In the view of Colonel (Ret.) Huba Wass de Czege, "We must expect that future joint operations will have to be mounted and to a large extent sustained directly from the U.S., its territories, and those allies choosing to support us, creating minimum essential theater support facilities concurrent with and as an integral part of combat operations."[7] As witnessed on numerous occasions in the 1990s, the U.S. military can be considered an expeditionary force. A capabilities based military complex necessitates forces capable of multiple mission tasking, or in the vernacular, transitioning from offense to defense to stability and support operations quickly. This highly flexible force must be employable from strategic distances. Hence, the capabilities based force should be more mobile, lighter but more lethal, with less logistical tail, while incorporating current and developing information technologies. Is this transformation? At a glance, yes.

WHAT IS TRANSFORMATION?

> New weapons of warfare call for the total and radical
> reorganization of methods of warfare, and he who falls asleep
> during this process of reorganization may never wake up.[8]
>
>   Mikhail Tukhachevskiy

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[5] QDR, iv.

[6] Page 13 of the 2001 QDR fully discusses capabilities vice threat based military forces.

[7] Huba Wass de Czege and Richard Hart Sinnreich, "Conceptual foundations of a Transformed Army," Land Warfare Paper #40, The Institute of Land Warfare, (Arlington, Virginia: Association of the U.S. Army, 2002), 6.

[8] Mikhail Tukhachevskiy, "New Problems in Warfare," AMSP Course 1 SAMS Reprint, from U.S. Army War College Art of War Colloquium (Carlisle Barracks, PA: 1983), 19.

Merriam-Webster's Online Dictionary defines transformation as an act, process, or instance of transforming. Transforming is defined as a change in composition, structure, outward form of appearance, character or condition. As applied to the military, this definition of transformation pertains to the entire gambit including organizational structure, hardware, doctrine and force employment, and certainly training at a minimum. With such a broad spectrum possible, it is desirable to hone the definition of transformation for use in the DOD and those working on transforming their service. One could conceive that any program with great import to the DOD would be readily defined and available. Alas, no definition of transformation is provided in Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms. Currently there is no readily available definition of transformation in any of the joint publications. Certain prominent transformation advocates in the joint world and the services espouse their own definitions, but their definitions are not clearly defined in publications or doctrine nor used uniformly within each service. The services and the joint community have white papers and assorted documents concerning transformation, but no consistent definition persists between the communities. U.S. Joint Forces Command (USJFCOM), the command tasked with representing joint requirements and training, has posted a stand-alone definition on its website. Specifically, USJFCOM states: "Transformation is the process of changing form, nature or function. Within the United States military, transformation requires changing the form, or structure of our military forces; the nature of our military culture and doctrine supporting those forces; and streamlining our warfighting functions to more effectively meet the complexities of the new threats challenging our nation in the new millennium."[9] Though this definition is purposefully vague and contains only a minor overture to any increase in military capabilities derived from transformational efforts, it serves as the prominent definition readily proposed and available from the joint military complex.

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[9] U.S. Joint Forces Command, "What is Transformation?" [Online] Available http://www.jfcom.mil/about/transform/html, August 24, 2002.

General Gordon Sullivan, USA (Ret.), recently asserted, "At the heart of transformation are changes in the geopolitical context of operations, the physics of the battlefield, and the nature of future threats."[10] Another way of viewing transformation is provided by Andrew Krepinevich, director of the Center for Strategic and Budgetary Assessments. Mr. Krepinevich testified before Congress that "transformation can be thought of as innovation on a grand scale. [It is] …typically associated with an RMA [revolution in military affairs], in which a combination of technology, warfighting concepts and organizational change combine to bring about a dramatic leap in military effectiveness."[11] This definition is more mainstream than USJFCOM's with its inclusion of a dramatic leap in effectiveness resultant of an RMA. The RMA Krepinevich refers to in this case is the information technology revolution witnessed first in the commercial sector during the 1990s. Krepinevich's viewpoint is mirrored in numerous writings and speeches from the DOD and its personnel. The DOD Transformation Study Group, the director of the DOD Office of Force Transformation (Admiral Arthur Cebrowski, USN (Ret.)), DOD published reports such as Network Centric Warfare, and testimonies before congress such as that given by Maj. Gen. David Deptula, USAF, all place greater emphasis on the creation of synergistic qualities within the joint force that achieve a great leap in military capabilities and effectiveness.[12] The bottom line is that defining transformation is a slippery slope whereby gaining traction for implementation is quite difficult. All parties seem to view transformation as an ongoing process without boundaries in terms of innovations. But this broad spectrum is the crux of the problem of transforming. If one cannot define what one is to do, how does one do it? It is apparent that transformation cannot be thought of in single-service platitudes nor can services transform

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[10] Gordon Sullivan, foreword to "Conceptual Foundations of a Transformed Army," by Huba Wass de Czege and Richard Hart Sinnreich, v.

[11] Andrew F. Krepinevich, "Defense Transformation," testimony before Senate Committee on Armed Services (Washington, D.C., 9 April 2002), 2.

[12] See appendix for multiple definitions of transformation.

without considering the effect their program has on joint capabilities. The independent services

transformation programs are merely modernization without a joint context of transformation.

WHAT IS JOINT TRANSFORMATION?

> We don't need services running off in four directions, and the…
> [sic], when the balloon goes up, wondering why they aren't as
> effective a joint force as they could be.[13]

> Secretary of Defense Donald Rumsfeld

Defining joint transformation, like transformation, is a complex undertaking. First, one must

consider what is "joint" and what are "joint operations". Joint according to JP 1-02, "connotes

activities, operations, organizations, etc, in which elements of two or more Military Departments

participate."[14] This definition does not inspire thoughts of synergy or unified actions. Rather, it

is somewhat void of crediting the joint community of being representative of what Peter Senge

calls a complex system of systems.[15] Unfortunately, past joint endeavors often mirrored the JP

definition as services viewed themselves as supporting or supported but not necessarily part of the

unified team. In the mid-1980s the lack of "jointness" drove Congress to embrace the Goldwater-

Nichols Act. "The Goldwater-Nichols Department of Defense Reorganization Act of 1986

identified and addressed a huge problem – the demonstrated inability of the military services to

work effectively together as a joint team in conducting military operations."[16] Military operations

in Iran, Lebanon, and Grenada focused Congress on the need for common joint doctrine, seamless

capabilities from finite resources, and a concept for employment whereby synergy from the

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[13] Donald Rumsfeld, quoted in Kathleen T. Rhem, "Rumsfeld Tells Pentagon Workers Transformation Critical to Success," [Online] Available http://www.defenselink.mil/news/Aug2002/n08062002_200208062.html, August 26, 2002.

[14] Department of Defense, Joint Publication 1-02, *Department of defense Dictionary of Military and Associated Terms*, (Washington, D.C., 2001), 273.

[15] Reference Peter Senge's *The Fifth Discipline* for a complete discussion of system's thinking.

services exceeded their sum total. Goldwater-Nichols sought to change the military mindset from parochialism to an end state of "jointness". As assessed by the Center for Strategic and International Studies (CSIS), "By empowering the CINCs and the Chairman of the JCS, Goldwater-Nichols established clear responsibility for the conduct of military operations and in no small part, created the basis for the stunning military successes achieved by the U.S. in the 1990s [Operation DESERT STORM].[17] Thus DESERT STORM is a validation of the attempt to create joint synergy and in essence defines what Congress desires out of the joint community. However, Gen. Richard Myers, Chairman of the JCS, recently quipped about transformation in relation to DESERT STORM, "Look at how we fought DESERT STORM. It was a hugely successful campaign, but it was largely a sectored campaign. …My point is that we segregated and sequenced our efforts. This is not integration – it's more akin to deconfliction."[18] General Myers was referencing how the USAF waged 38 days of an air campaign followed by a ground campaign that divided the services along boundaries and kept most USAF Close Air Support (CAS) missions beyond the sight of coalition troops. The victory may have validated the command structure and desire for "jointness", but apparently true synergy from interoperability was avoided in favor of segregation. The letter of the law was followed, but perhaps some of the intent was sidestepped.

Joint interoperability is really a question of nesting the services' core competencies beneath that of the joint team. Synergy is achieved as the services apply their competencies in concert; their overture may be divided along traditional boundaries but they are more audacious when employed in a joint battlespace. The key to "jointness" is blending the strengths of service-centricities within the joint team while employing joint forces. Joint Vision 2020 (JV 2020)

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[16] "Beyond Goldwater-Nichols: Defense Reform for a New Strategic Era, Project Summary" (Center for Strategic and International Studies, 2002), 1.

[17] Ibid.

states, "To build the most effective force for 2020, we must be fully joint: intellectually, operationally, organizationally, doctrinally, and technically."[19] To meet this demand, the services must organize, train, and equip their forces with joint synergy in mind, hence joint transformation.

In the wake of 9/11, budgets are constrained as the services strive to pay for the ongoing war on terrorism, while yet addressing transformation. The need to do both necessitates fiscal conservatism in order to procure those technologies and tools that will be needed in the future. The foreseeable threat spectrum spans from terrorism to future peer competitors. The wide range of possible threats underlines the need for a force, transformed or not, that addresses capabilities from home to the front-line. The need to transform from a Cold War military complex was espoused as early as 1997 in DOD reports and study groups for Joint Vision products; the "Pearl Harbor" of 2001 clearly awakened the DOD not only to the need for transformation, but for transformation within a joint context in order to address current and future threats while maintaining unity of effort. Gen. Henry Shelton, former Chairman of the JCS, wrote in the 2001 QDR, "First, a DOD-wide transformation strategy, a joint organizing vision, and a joint transformation roadmap are essential to guide, integrate, and synchronize the efforts of the Services."[20] Clearly the QDR was carefully worded to recognize that "transformation is highly path-dependent… [whereby] choices made today may constrain or enhance options tomorrow."[21] The question remains then, 'What is joint transformation and where do the services gain joint direction?' The QDR tasked the services to develop and submit their transformation roadmaps, but did not directly address the creation of a joint roadmap.[22]

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[18] Richard B. Myers, "Transformation," speech before the town hall Los Angeles Luncheon (Washington, D.C., 27 September 2002), 4.

[19] Department of Defense, *Joint Vision 2020*, (Washington, D.C., 2001), 2.

[20] QDR, 68.

[21] QDR, 29.

The DOD Transformation Study Group, in their 27 April 2001 brief, stated that transformation enabled a "move from marginal superiority over Cold War opponents to dominance across the full spectrum of 21st century military operations – full spectrum dominance with Joint Response Forces."[23] This and other statements are commonplace among DOD papers and projects concerning joint transformation. They have led to a quandary for procurement officials. Lt Gen Robert Magnus, USMC Deputy Commandant for Programs and Resources quipped, "How do I know if I'm transforming the force when I'm making a decision about a certain kind of ship, airplane, land combat system, or even capabilities in space and information? The answer is you really don't, because you don't have a joint operating context."[24] Without a definition of transformation or a joint roadmap, the services must look for other directives or direction. White papers such as JV 2020 essentially provide roadmaps of what must be achieved on the future battlefield. They provide a glimpse of joint operations, but do not readily yield tasking in support of a joint transformation. USJFCOM purports that, "The 2001/2002 Unified Command Plan gave USJFCOM a "laser" focus to become the incubator for new transformational concepts to build the military of the 21st century."[25] Alas, while JFCOM may be so tasked, no roadmap has been published. According to reports by Amy Svitak, the joint Transformation Planning Guidance was originally conceived for release in the summer of 2002, but now is targeted for delivery in 2003.[26] Her report cites the need for guidance to the services to shore up their roadmaps in continuing the circuitous process of transforming the military. In

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[22] QDR.

[23] DOD Transformation Study Group, 5.

[24] Robert Magnus, quoted in Jason Ma, "Services, Joint Staff Forming Joint Operational Concepts," [Online] Available http://ebird.dtic.mil/Nov2002/s20021125137922.html, November 26, 2002.

[25] USJFCOM, "What is Transformation," 2.

[26] Amy Svitak, "New U.S. Transformation Guidance Expected," [Online] Available http://ebird.dtic.mil/Nov2002/s20021112expected.htm, November 12, 2002.

lieu of such a joint document, the services must rely on the QDR and the Secretary of Defense's

Annual Report to Congress to glean the essence of joint transformation.

The QDR declared, "Transformation results from the exploitation of new approaches to

operational concepts and capabilities, the use of old and new technologies, and new forms of

organization that more effectively anticipate new or still emerging strategic and operational

challenges and opportunities and that render previous methods of conducting war obsolete or

subordinate."[27] Specifically, the QDR cited four pillars and six goals of transformation.

Pillars
1) Strengthening joint operations through standing joint task force headquarters, improved joint command and control, joint training and an expanded joint forces presence policy
2) Experimenting with new approaches to warfare, operational concepts and capabilities, and organizational construct such as standing joint forces through war-gaming, simulations and field exercise focused on emerging challenges and opportunities
3) Exploiting U.S. intelligence advantages through multiple intelligence collection assets, global surveillance and reconnaissance, and enhanced exploitation and dissemination
4) Developing transformation capabilities through increased and wide-ranging science and technology, selective increases in procurement and innovations in DOD processes[28]

Goals
1) Protecting critical bases and operations (U.S. homeland, forces abroad, allies and friends) and defeating CBRNE [chemical, biological, radiological, nuclear and high yield explosives] weapons and their means of delivery (critical infrastructure)
2) Assuring information systems in the face of attack and conducting effective information operations
3) Projecting and sustaining U.S. forces in distant anti-access or area-denial environments and defeating anti-access and area-denial threats
4) Denying enemies sanctuary by providing persistent surveillance, tracking, and rapid engagement with high-volume precision strike, through a combination of complementary air and ground capabilities, against critical mobile and fixed targets at various ranges and in all weather and terrains
5) Enhancing the capability and survivability of space systems and supporting infrastructure
6) Leveraging information technology and innovative concepts to develop an interoperable, joint C4ISR [command, control, communications, computers,

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[27] QDR, 29.

[28] QDR, 32.

intelligence, surveillance, and reconnaissance] architecture and capability
that includes a tailorable joint operational picture[29]

    The Secretary of Defense declared in the Annual Report to the President and Congress what
each service will be.

> "Ground forces will be lighter, more lethal, and highly mobile. They will be
> capable of insertion far from traditional ports and air bases and will be networked
> with long-range precision-strike systems. Naval and amphibious forces will be
> able to overcome anti-access and area-denial threats, operate close to an enemy's
> shores, and project power deep inland. Aerospace forces will be able to locate
> and track mobile enemy targets over vast areas, and in combination with land and
> sea forces, strike them rapidly at long ranges without warning. The joint force
> will be networked in order to conduct highly complex and distributed operations
> over vast distances and in space."[30]

This statement is a point of departure for the services and should be blended with the pillars and

goals to define the forces each service seeks in their transformation. It may be noted, however,

that nothing revolutionary is contained in the statement and that current forces can arguably

achieve what is decreed without restructuring, re-arming, or a shift in doctrine. If not careful, the

services could adapt this edict in continuance of modernizing legacy competencies without

adapting new and old systems with information technologies to gain a true synergistic system of

systems. Naturally, avoiding mere modernization in favor of transformation may mean the loss

of service pre-eminence in certain core competencies. The QDR reflects this on page 23, "As this

transformation effort matures—and as it produces significantly higher output of military value

from each element of the force—DOD will explore additional opportunities to restructure and

reorganize the Armed Forces."[31]

    Discerning modernization efforts from transformational efforts is indeed a task that may

prove incredibly difficult. Defining what joint transformation is not may serve a useful purpose.

First, it is not a definitive blueprint. Change in the transformation plan over time is good and

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[29] QDR, 30.

[30] Department of Defense, Annual Report to the President and the Congress, (Washington, D.C., April
2002), 3.

rightly desired to flesh out both weak approaches and hardware. Second, joint transformation does not imply further 'stovepiping' of technology in service-centric modernization efforts. Modernization is useful in transformation, so far as the modernized system or complex is applied within a transformational construct. Third, joint transformation is not increasing legacy efficiencies or extending legacy capabilities for the sake of the service. Legacy forces will certainly be part of any transformed force along the path to full transformation. They will most likely enjoy increased efficiencies when coupled with superior information technologies and newer transformational systems, but seeking their increased efficiency is not a goal, but a byproduct of the RMA in information technology. The service priorities in relation to the legacy systems should be to decipher how and on what timeframe do they incorporate with transformational contexts. Fourth, transformation is not merely streamlining current processes. U.S. Military endeavors will always encounter fog and friction whereby streamlining processes alleviates some of their effects. However, transformation is about finding ways to incorporate new processes in order to maximize the synergistic effects of the forces involved. Finally, joint transformation is an on-going process and not a silver-bullet acquisition scheme. Change must occur in increments as new technologies, platforms, organizations, and doctrine become available.

Above all, while joint transformation is delineated among the services, it remains fluid and is under the direction of the Secretary of Defense and the DOD hierarchy. All program requirements and changes will continue to be subject to the Planning Programming and Budgeting System (PPBS) and Joint Requirements Oversight Council (JROC). Here lays the joint muscle to ensure transformation remains inside a joint context. Recently when queried during a Senate hearing on DOD transformation about how JROC oversight of the PPBS was working in light of transformation, Gen. Peter Pace, Vice Chairman of the JCS replied, "So, we [JROC] are not doing what we should be doing as well as we should as far as being proactive,

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[31] QDR, 23.

sir."[32] The JROC needs a coherent joint plan as much as the services to determine priorities for

fiscal support. If joint forces are to be a system of systems, then the JROC must be able to

prioritize requirements in light of transformation. It is apparent that new systems must support a

common operational picture and ability to interface with the complete joint package, but until

there is a benchmark for joint transformation the JROC's efforts will be tenuous at best. Clearly a

joint operational concept for joint transformation is needed so that all parts of the force work to a

common goal.[33] In lieu of possessing a joint operational concept or joint roadmap, a sound

definition of joint transformation is required to determine where the services are truly headed.

In light of the numerous DOD reports, testimonies, works, and speeches, this author further

derived the USJFCOM definition of transformation. Specifically, joint transformation is the

constructive adaptation of force structure, culture, and doctrine to achieve a new joint operational

construct wherein technologies and their related concepts are incorporated to yield order of

magnitude increases in joint capabilities. Joint transformation implies integration of forces and

systems for a seamless application of the combined system of systems. The result is an order of

magnitude increase in offensive military capability that fundamentally alters the conduct of

military operations.

Dr. Thomas Mahnken professed in the summer of 2001 that, "The services have so far failed

to match the rhetoric of transformation with action."[34] A year and a half later in the evolution of

this current wave of transformation, it is appropriate to measure the independent services'

progress. This study seeks to answer whether or not the current transformations underway in the

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[32] Peter Pace, quoted from "Military Transformation," Paul Wolfowitz et. al. testimony before the Senate Armed Service Committee (Washington, D.C., April 9 2002).

[33] Hans Binnendijk, Transforming America's Military (Washington, D.C.: National Defense University Press, 2002), xxv.

[34] Thomas G. Mahnken, "Transforming the U.S. Armed Forces: Rhetoric or Reality?" *Naval War College Review*, Vol LIV No 3, (2001): 95. Dr. Mahnken, an associate professor in the Department of Strategy and Policy at the Naval War College, Newport Rhode Island, carefully outlined the IT RMA and what the services need to do to take this technological ability into the transformation realm. He specifically

independent services will actually yield an overall joint transformation. Defining joint

transformation was the first building block in the process. The services programs must next be

examined for 'jointness' and their overall contribution to the joint team in light of the formulated

definition.

outlined the service transformation systems and their programs; he is highly critical of those not fostering
intellectual debate concerning systems that don't conform to prevailing Cold War service-centric models.

CHAPTER TWO

METHODOLOGY

> We must build forces that draw upon the revolutionary advances
> in the technology of war that will allow us to keep peace by
> redefining war on our terms. I'm committed to building a future
> force that is defined less by size and more by mobility and
> swiftness, one that is easier to deploy and sustain, one that relies
> more heavily on stealth, precision weaponry, and information
> technologies.[35]

President George W. Bush

The restated research question is, "Do the independent service's transformation programs meet the future needs of the joint community?" The answer is highly dependent on which definition of joint transformation is used. In regard to the definition, measures of merit are needed to weigh the efforts of the services. The services transformation plans are therefore examined to determine the degree they provide joint transformation. The services produced roadmaps in the fall of 2002 that represent their vision for transformation as mandated in the 2001 QDR. Measuring them for merit relates their progress against a truly joint transformational program. The results provide the basis for answering the research question. The byproduct of studying the transformation roadmaps is an insight to the core competencies and capabilities each service envisions for future planning. Blending these into a joint package of capabilities provides feedback to the joint community on strengths and weaknesses of current transformational plans. They also provide insight of the impact on joint operations and joint doctrine.

MEASURES OF MERIT

The derived transformation definition in chapter one addresses force structure, service culture, and service doctrine. Service doctrine will logically follow joint doctrine and the two

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[35] Bush, George W., Commencement Speech at U.S. Navel Academy (Annapolis, Maryland: May 25, 2001), [Online] Available http://www.whitehouse.gov/news/releases/2001/05/20010525-1.html.

shall evolve in a circuitous fashion rather than "transform". Hence, doctrine is not easily quantifiable and does not provide a platform for measurement. Likewise, service culture, an evolutionary phenomenon, is not likely to change based on future plans. It will follow changes enacted by leadership and will reflect transformation as it occurs. Therefore, service culture and doctrine should be addressed by the roadmaps, but are not appropriate for measuring service impact on joint transformation. These delimitations leave only force structure for ease of measurement. Thus, measures of merit must be focused on force structure and their alteration via new technologies and plans of employment. Additionally, force structure and its hardware are directly affected by the lengthy cycle of the PPBS. Because of the time required to procure and make operational, the service transformation plans must address force structure with the utmost of care. Force structure and procurement of weapon systems have the largest impact on transformation plans, as they must be adequately forecast well in advance of their availability. Doctrine and culture can be changed relatively quickly whereas producing new systems and training the force to use them requires lengthy forethought.

The lack of a coherent joint transformation roadmap or joint operational concept necessitates reviewing other DOD and joint releases for deciphering those forces and systems that will be needed in the future. The Joint Vision series of publications provides insight on the direction the joint community will likely take for future operations. Joint Vision 2020 provides rudimentary views of what the services should be able to achieve in supporting the joint team.[36] Furthermore, in the Guidance to the 2001 QDR produced by the staff of the Secretary of Defense, the DOD

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[36] Currently several operational constructs are being considered and incorporated into joint experimentation. Effects Based Operations (EBO) is the concept of considering the effects on the system as a whole to maximize each military action. Rapid Decisive Operations (RDO) incorporates EBO to destroy the cohesion holding the enemy system of systems together. It relies on rapid mobility and an operational net assessment to support joint tactical operations in decision making on the battlefield (according to Gen Charles E Wilhelm, USMC (Ret.) in "A Path Toward Transformation" by Emily Clark). The follow on construct, Joint Operational Warfighting (JOW), is being designed to develop the operational construct further while retaining the net assessment and C2 foundation of RDO. It too is intended to be an effects based application of combat power. Finally, Joint Warfighting Concept (JWC) is the capstone concept being developed for fully exploiting the DIME. More information on RDO, JOW, and JWC is available at the USJFCOM web site, http://www.jfcom.mil/about/transform.html.

directs the services to leverage information technology to create a network centric operational force.[37] Thus, measures of merit should reflect both JV 2020 and the use of information technologies (IT) in producing fully netted forces.

A review of pertinent transformation studies, reports, and articles yields a virtual plethora of possible criteria or measures. The possibilities are endless as each service, author, and constituency fills centric needs by the transformation they propose. While definitive measures are not espoused universally, most of the criteria used are not necessarily prohibitive of joint transformation. Many are more akin to modernization and procurement of service-centric systems. Therefore, true measures across all programs are difficult to discern. The guiding light, however, comes from the Secretary of Defense. In a memorandum concerning DOD priorities for 2002, he proposed a lighter, more agile, easily deployable military unit based on a military culture that rewards innovation and risk taking.[38] From this guidance and the JV 2020 construct, four measures have been formulated for this study.

While ten or more measures could be used, it is evident that using only four aids in ensuring that the focus is kept at the joint level and avoids service-centricities. The measures for use are rapid response, scalability, survivability, and long range forced entry. These measures are not directly quantifiable, but provide the backdrop for measuring how directly the service plans address future joint operational needs. They are universal; new joint operational concepts could vary, but these four address the services attempts to address threats across the full military spectrum. Rapid response addresses the strategic mobility and deployability of service forces as

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[37] Department of Defense, *Guidance and Terms of Reference for the 2001 Quadrennial Defense Review* (Washington, D.C., 2001), 2. Alberts and Garstka, in *Network Centric Warfare*, define the essence of NCW as the ability for U.S. armed services and allies to create a 'shared battlespace awareness' in which information collected by different units and intel sources can be gathered and analyzed to make intelligent battle decisions. From page 2, [NCW is] "an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization."

[38] Department of Defense, *Memorandum for Secretaries of the Military Departments: Legislative Priorities for Fiscal Year 2003* (Washington, D.C., September 17, 2002).

deemed necessary by the Secretary of Defense. While not all forces will be immediately

responsive, the service plans should provide insight to meeting this need for forces of all types.

Scalability addresses the capability to be lighter and more agile while providing competence in

the applied mission. Survivability is a byproduct of tactical agility and increased lethality. It is

directly affected by the degree to which systems are joint networked for information dominance

in order to maintain predictive battlespace awareness. Long range forced entry addresses the

requirement for long-range precision strike capabilities from forces of all types and from all

mediums. Innovation and risk taking are essentials for commanders thrust into operations far

from support bases. For all four measures, increased lethality gained from networking with joint

asset precision fires is required. The measures boil down to addressing the needs for future joint

missions from combat to stability and support operations without directly testing based on a

coherent joint operational concept. They are not meant to prohibit the inclusion of legacy

systems into the transformed force nor are they derived solely to place value on IT. They do

measure the intent of the service roadmaps to address future requirements (in a joint context) for

traditional conflicts as well as non-contiguous, non-linear operations. After all, "To achieve its

full impact, military transformation in the information age must be joint, not centered separately

in the different services."[39]

EVALUATION

The service roadmaps were released from the summer to the fall of 2002. Each is intended to

meet the requirements of the QDR and to provide the services direction in determining priorities

for their efforts. Whereas the roadmaps were produced as tasked, numerous other service releases

also address transformation plans. Often they provide the context and intent of service ideas. In

evaluating the service plans, it is necessary to consider these sources for additional information

concerning transformation plans; they are documented as used in the analysis.

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[39] Binnendijk, xxv.

The evaluation process has two parts. First, each service roadmap is reviewed to determine its merit. The level of jointness is assessed as each roadmap yields the service plan. The transformation theme is determined while the measures are evaluated. Each service is viewed by the extent to which its roadmap is evolutional or transformational. The resultant core competencies, capabilities, and emerging concepts are recorded. Changes from current structure and doctrine are noted as readily apparent. In this phase, the service is viewed for its own transformation.

The second phase of evaluation relates the independent services to their combined effect on joint transformation. "The integration of core competencies provided by the individual Services is essential to the Joint team, and the employment of the capabilities of the Total Force (active, Reserve, Guard, and civilian members) increases the options for the commander and complicates the choices of our opponents."[40] The resultant core competencies and capabilities of the services are jointly cumulative and hopefully synergistic. As such, they provide the degree to which the joint community can provide full spectrum dominance. The summation of the service roadmaps yields those concepts that the joint team will be able to exploit. As applied across the conflict spectrum, the resultant competencies provide spectrum coverage. By reviewing their cumulative effects on joint capabilities, an assessment is possible of how well the transformed joint force will meet future contingencies. The refined capabilities can be compared to current capabilities of the joint team in assessing how the transformation of the services increased joint capabilities. The evaluation should reveal lapses or possibly overlaps where the services are duplicating efforts or where streamlining the transformation process may yield monies for other transformational endeavors. Above all, the effects of transformation are reviewed to assess the ability to provide parallel, continuous and seamless operations in a joint context.

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[40] Department of Defense, Network Centric Warfare, [Online] Available
http://www.c3i.osd.mil/NCW/, (October 17, 2002), 2-3.

This monograph seeks a yes or no answer to the proposed thesis question. In order to answer yes, the service transformation roadmaps must provide new concepts or capabilities that meet the refined definition of joint transformation in chapter one that are employable by the joint combatant commander (a baseline assumption is that technological advances, organization and doctrinal changes, and proposed networking of assets will meet the transformation roadmap's stated end-state). Answering no implies that the concepts or capabilities are either not transformational in a joint context or not employable based upon gaps in the joint community's ability to fulfill the desired support or provide required enablers. A service transformation roadmap may fulfill the joint transformational measures of merit, but fail to provide a joint transformational capability, as joint assets were not planned appropriately or previously available. In either case, it is not reasonable to assume the answer to be simply black or white. The grey area is potentially great. Assessing the degree to which the services meet the measures of merit provides information for the reader for basing their own opinion as to whether or not the independent service transformation programs meet the future needs of the joint community.

SIGNIFICANCE

Answering yes or no to the research question provides direct insight on how the joint team is accomplishing the transformation mission at hand. The requirements of a capabilities based U.S. military are difficult to define for the future. The service roadmaps offer the first glimpse of where DOD transformation is headed. JV 2020 declared, "To build the most effective force for 2020, U.S. Armed Forces must be fully joint: intellectually, operationally, organizationally, doctrinally, and technically."[41] If the roadmaps don't foster joint synergy by design, it is less likely to occur by default and will be more difficult to re-engineer once the transformed structure is in place. It would be quite detrimental for the military complex to end up with service competencies and stove-piped capabilities that are not supported across the joint arena or simply

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[41] JV2020, 2.

performed by newly purchased systems and/or altered organizations. "[The] DOD needs to assemble "system of systems" (with co-evolved organizations, doctrines, processes, and informational flows) that will enable this integration to occur."[42] Designing and networking the services for synergy is the very heart of joint transformation.

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[42] NCW, 2-2.

CHAPTER THREE

DOD TRANSFORMATION LINEAGE

> The ultimate test of any military transformation is its relevance to
> the threats with which it is confronted.[43]
>
> Huba Wass de Czege,
> Richard Hart Sinnreich

The U.S. military complex underwent numerous changes during the 20th century. Two of

them were more profound and had a transformational impact on joint culture and capabilities.

The Defense Reorganization Act of 1947 (as amended in 1949) and the Goldwater-Nichols

Defense Reorganization Act of 1986 were transformational in that they directly legislated change

in DOD structure and indirectly in culture and doctrine. They are assessed to be the "hardware"

(1947) and the "software" (1986) of the DOD.[44] Their intended impact was not merely new titles

and joint organization, but service nesting and joint synergy.

The Joint Chiefs of Staff was established in 1942 to advise the President on the military; it

was comprised of senior leaders and maintained a committee system to allow participation from

both departments (War and Navy) and all branches (USA, USN, USAAC, USMC).[45] The system

sufficed for operations in World War II, but lacked coherency. "The lack of real unity has

handicapped the successful conduct of the war. [Joint committee system] It was a cumbersome

and inefficient method of directing the efforts of the Armed Forces."[46] Following the war,

American generals and politicians alike desired change. The emerging Soviet threat coupled with

military downsizing necessitated review of the military complex.

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[43] Wass de Czege and Sinnreich, 2.

[44] "Beyond Goldwater-Nichols," 1.

[45] Department of Defense, *Organizational Development of the Joint Chiefs of Staff, 1942-1989*
(Washington, D.C., 1989), 11.

[46] George C. Marshall, quoted in *Organizational Development of the Joint Chiefs of Staff, 1942-1989*
(Washington, D.C., 1989) 11.

DEFENSE REORGANIZATION ACT OF 1947

The Defense Reorganization Act of 1947 replaced the separate Departments of War and the Navy with the National Military Establishment. The '49 amendment changed the name to the Department of Defense and replaced the military complex with one system under the direct control of the Secretary of Defense. It created the new position of Chairman of the Joint Chiefs (CJCS) whereby a single senior service member was directly responsible to civilian authority. The newly created Air Force, the Army, and the Navy were legislated to support the joint staff in achieving DOD goals. Ultimately, the legislation attempted to guide the services into greater cooperation and to foster civilian control of the military complex.[47] Whereas capabilities and technologies were certainly changing, this transformation sought synergy by altering the organization of the DOD. The act streamlined the bureaucracy and laid the hardware for future joint endeavors. The risk associated was minimal as the stated threat to the United States was readily definable. The capabilities of the independent services were not altered per se, but the act did intend for more fluid operations among the military services to alleviate what General Marshall noted from World War II as cumbersome and inefficient joint cooperation.

The DOD evolved from the 40s to the 80s with only minor changes in the joint community. The Defense Reorganization Act of 1958 established unified commands, but subjugated them to the services.[48] This created a problem not only for the chain of command but also for organizing and prioritizing forces for joint cooperation. By 1982 the Chairman of the JCS proposed a new structure to address the inadequacies in joint experience and the by-design conflict from the service chiefs and the unified commanders. General David Jones, CJCS, cited inadequate provisions for a structure and procedures for rapid transition to war and insufficient involvement of unified and specified commands in decision making.[49] Military operations in the attempted

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[47] *Organizational Development of the Joint Chiefs of Staff*, 16-21.

[48] *Organizational Development of the Joint Chiefs of Staff*, 37.

Iran hostage rescue and Grenada readily brought to light the question of joint readiness, training, and capabilities. There was a sudden realization that joint – wasn't. As the Chairman sought change, so too, did politicians see the need for reduced redundancy and increased joint command, control, and training.

GOLDWATER-NICHOLS DEFENSE REORGANIZATION ACT OF 1986

The Goldwater-Nichols Defense Reorganization Act of 1986 altered and recreated DOD Joint Commands and revised the hierarchy of the chain of command. Ultimately, the legislation attempted to guide the services into greater synergy to improve the functioning of the joint system. Specifically, the Act named the Chairman of the JCS as the principle military adviser to the National Command Authorities and called for the other Joint Chiefs to offer their expertise by exception. The new post of Vice Chairman of the JCS was created to alleviate some of the duties required of the Chairman and to act in his stead as needed. The Joint Staff was placed directly accountable to the Chairman and a new policy was mandated to encourage joint officer development among the services. The Act also added authorities for the unified and specified commanders.[50] The Act mandated joint, as it is understood currently. "Via the G-N Act, Congress sought to clearly establish the primacy of the CINCs over the Service chiefs, at least with respect to the determination of required military capabilities."[51] The Act led to the development of the Joint command system comprised of a Joint Forces Commander and subordinate force specific commanders (Land Component, Air Component, Maritime Component). This structure proved most useful in Operation DESERT STORM, which served as a test of the Goldwater-Nichols Act. Congress intended to create synergy through organization and emphasis on cooperative training. The risk associated with the legislated change was

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[49] *Organizational Development of the Joint Chiefs of Staff*, 59.

[50] *Organizational Development of the Joint Chiefs of Staff*, 64.

minimal as the threat-based posture of the military complex did not change and the preceding

military operations provided ample impetus.

RELEVANCE

The '47 and '86 Acts had varied impacts. The Reorganization of 1947 created the structure

and environment for cooperation and synergy among the services. However, the services did not

readily build upon the intent. Parochialism continued and tensions among the services persisted

despite increased unified military endeavors of the 50s, 60, and 70s. The Goldwater-Nichols Act

mandated synergy and joint focus in attempt to minimize the centricities of the services. It sought

to defeat the what's mine is mine and what's yours is joint mentality. "Contrary to the intent of

the act, the services have retained dominant influence in the military requirements determination

process. The JROC improved the joint rationalization of military requirements, but has yet to

achieve the focus on the CINC's requirements intended by congress."[52] As assessed by Gordon

and Trainor in *The General's War*, Goldwater-Nichols gave Central Command (USCENTCOM)

a staff to plan and react, but in reality the staff didn't have the "expertise and resources to do the

war planning."[53] The bottom line for both legislated Acts was the attempt to create synergy in the

joint community. They were steps to affect a joint transformation by strengthening civilian

control while providing effective means to wage joint operations.

Transformation has been called an ongoing process. It is logical that if it is so, it itself is

evolutional in nature. The DOD has undergone two steps in its transformation evolution and is

currently in a third. The efforts of the current President and Secretary of Defense are rooted in

the Acts of '47 and '86. Their efforts are affected by various assessments of the DOD such as: 1)

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[51] Douglas C. Lovelace, *Unification of United States Armed Forces: Implementing the 1986 Department of Defense Reorganization Act* (Carlisle Barracks, Pennsylvania, 1996), 31.

[52] Lovelace, 58.

[53] Michael R. Gordon and Bernard E. Trainor, *The Generals War* (New York: Little, Brown and Company, 1995) 77.

the services continue to dominate the requirements determination process (i.e. service needs vice joint needs or transformation); 2) an effective system for evaluating the preparedness of the combatant commands to carry out their assigned missions, for identifying force capability strengths and deficiencies and for assessing the impact of such strengths and deficiencies on strategic plans and policy has yet to be implemented; 3) congressional intent concerning review and realization of roles and functions among the services has not been completely realized (i.e. capabilities overlap or redundancies).[54] The risk associated with the previous two steps of transformation was low due to the stable threat based military posture and the amount of time perceived to transform. In each instance service competencies were not altered but were redirected for operational use. The legislative nature of change was responsive to the perception of the lack of a true 'joint' team. Current efforts are less definable as no legislative change has been given. The internal DOD and Executive mandates are not definitive and add to the risk of service programs that don't conform to a single plan.

The new millennium joint transformation is riskier than those of '47 or '86. Unlike its predecessors, current transformation is based upon changing to a capabilities based military. While General Myers asserts, "Such an approach doesn't preclude consideration of specific threats", the absence of an easily attributable peer competitor induces greater chance into the procurement of systems for future conflict.[55] When coupled with the fact that transformation is a process requiring greater risk taking and innovation, current efforts become considerably more tenuous than those of the twentieth century. Unlike previous efforts at transformation, current efforts are tied to the budgetary constraints of the PPBS. Current DOD hardware and software are in place courtesy of previous legislation. Modern transformation is about getting the intended synergy out of the service's systems. Organizations and doctrine are to be adjusted accordingly

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[54] Lovelace, viii.

[55] Richard B. Myers, "Posture Statement," testimony prepared for Senate Armed Services Committee (Washington, D.C., February 5, 2002), 7.

to fit the advancement in technologies and systems. As Congress controls the budget, the likelihood persists of legislated transformation if the DOD cannot decipher its transformation. Above all, the lack of a stated future threat leads to the chance that the independent services will focus on different issues and capabilities without careful oversight from the DOD.

Historically in the military complex, joint guidance aims to increase unified efficiencies. Guidance in the form of Joint Publications, Transformation Planning Guidance, or Joint and DOD directives ensure Service transformation efforts share unity of purpose. "Integration and synergy that true Jointness brings is the most powerful Transformation concept."[56] The derived definition of joint transformation and the subsequent measures of merit for evaluation are effective tools for determining how unified and to what extent transformation progress has been Joint. As Mikhail Tukichevskiy remarked concerning new technology and operational ideas, "…capitalist countries tend not to focus together and services don't view them the same way."[57] The economic cost of transformation will be great, but the national cost will be much higher if transformation does not yield joint synergy. The next step in the process to determine if the services' transformation programs yield a joint transformation is applying the measures of merit against the service transformation road maps. The analysis generated from careful study will provide the answer to the thesis question.

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[56] DOD Transformation Study Group, 90.

[57] Tukhachevskiy, 69.

ANALYSIS

The key to answering the proposed research question is first correctly testing the service transformation roadmaps against the derived joint transformational measures of merit and then applying the derived definition of joint transformation to the cumulative product in order to determine whether or not joint transformation is at hand. The answer provides direct insight on how the joint team is accomplishing its transformation to tomorrow's synergistic, full spectrum dominant force. The measures of merit (rapid response, scalability, survivability, and long range forced entry) were crafted such that they stand alone in terms of service capabilities yet reflect joint requirements when viewed in light of the derived definition of joint transformation. The intent is to test each service roadmap for its fundamental concept of transformation, rate it for its degree of "jointness", and then determine if the joint community stands to gain a new competency or capability. When the roadmap evaluations are combined, a joint composite transformational plan is exposed. Therefore, the independent services' roadmaps either do or do not provide the joint community with new joint capabilities to meet future threats.

U.S. ARMY

The U.S. Army declared its transformational campaign first among the military services. Being first, the Army had more time to filter its desires with the challenges of transforming the nation's largest service. Over the past five years, numerous preliminary notions of Army transformation have surfaced. Understanding these aids the evaluator in viewing the current transformation roadmap.

The Army's greatest proponent for transformation has been its current Chief of Staff, General Eric Shinseki. He has defined his tenure through the Army transformational campaign. His mantra has been, "We are building a capabilities-based force that responds to the requirements of the strategic environment in which our soldiers will be the most strategic relevant

and decisively capable elements – no matter the mission, no matter the threats, no matter the risks."[58] He has also stated that, "Logistical Transformation will give our Objective Force the rapid deployability and sustainability we demand, without compromising warfighting lethality and survivability."[59] His focus has been to ensure that the Army transforms in order to prevent stagnation or decrease of relative strength and to guard against irrelevancy in an age of highly mobile strategically focused forces. The Army Transformation Campaign Plan White Paper encapsulates his desires in its stated mission to, "Transform The Army into a force that is strategically responsive and dominant at every point on the spectrum of operations."[60] Huba Wass de Czege and Richard Sinnreich aptly captured and elaborated on Shinseki's vision of Army transformation in "Conceptual Foundations of a Transformed Army". They make the case for networking weapon systems to replace movement to contact with movement to objective while using force for a preponderance of effects and not necessarily fires. They espouse highly flexible, light, scalable units sharing information horizontally and vertically providing situational awareness and understanding through a common operational picture. Their caveat for transformation of the Army is that joint force enablers must match the agility of these newly designed combat formations.[61] From Shinseki's vision and elaborations on the theme, such as Wass de Czege and Sinnreich, one expects Army transformation to include lighter armed forces capable of increased lethality derived from information technologies. Furthermore, the preliminary desire is clearly to achieve greater strategic mobility fostered by a robust but smaller logistics footprint while increasing the capability and combat power of the deployed force.

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[58] Eric Shinseki, Remarks at D.D.Eisenhower Luncheon of Association of the U.S. Army Convention (Washington, D.C., 22 October 2002).

[59] Ibid.

[60] Department of the Army, Transformation Campaign Plan, (Washington, D.C., 2001), i.

[61] Wass de Czege and Sinnreich, 23-31.

The Army's transformation roadmap confirms preliminary notions of Army transformation. The fundamental concept of transformation is stated as, "This process [transformation] will produce increasingly responsive capabilities and dominant formations that are modular and scalable."[62] The theme is quickly developed that Army formations become more strategically responsive and full spectrum capable based upon incorporation of information technologies such as "space based Joint, fully internetted C4ISR" that reduce the legacy requirements for heavier forces.[63] The service-specific transformational changes espoused are well defined and clearly technologically dependent ranging over a minimum transformational period of twenty years, but their address of joint enablers is thin on inclusion of joint capabilities.

The Army roadmap repeatedly stresses the need for jointness in cooperation to achieve transformation; however, this desire appears more to fill the needs for joint enablers of the Objective Force rather than synergistic effects. "The Army's Objective Force will negate anti-access and area-denial strategies through its ability to deploy from multiple points of origin to multiple point of entry, in remote areas with unimproved infrastructure, and operate with a minimal logistical tail."[64] This declaration implies the requirement for strategic lift capable of bypassing anti-access points and joint fires to allow the Objective Force to reach its deployment location. The roadmap contains plenty of rationale for creating the Objective Force and employing it to create the best possible power projection capability, but it does not elaborate on joint support requirements. Often it approaches a plea for sister services to purchase the lift assets this force would truly need for a large deployment. Overall, the roadmap seems to assume that appropriate sea and airlift will be procured for the Objective Force to become the lead component of any long-range precision engagement.

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[62] Department of the Army, *Transformation Roadmap*, (Washington, D.C., 2002), vii.

[63] Army Roadmap, 9.

[64] Army Roadmap, 8.

The Objective Force concept is built around the ability to "…deploy a combat capable brigade anywhere in the world in 96 hours after liftoff, a warfighting division in on the ground in 120 hours, and five divisions into theater in 30 days, operating as integral components of the Joint Task Force."[65] This is the crux of the roadmap and the new capability desired by the Army. The roadmap does not alter the existing Army core competencies (shaping the security environment, conducting forcible entry operations, mobilizing the Army, providing prompt response, sustaining land dominance, and supporting civil authorities).[66] While the competencies do not change, the adjustments are great in terms of altering force structure and organization from the legacy Army. The roadmap envisions a force designed around the future combat system (FCS) vehicle and the lighter logistical needs of the unit that employs it. According to the roadmap, the changes required to bring the Objective Force to fruition are largely dependent on hardware and its associated organizational design. The roadmap keys on procuring new vehicles (FCS) to provide the networked force needed to increase lethality. The roadmap stresses its own dependency on technology to produce breakthroughs whereby distinctions between heavy and light forces blur. Currently, the Army accedes that, "… a "capability gap" [exists] between our heavy forces that are well equipped for war but difficult to deploy strategically, and our light forces that can respond rapidly but lack staying power against heavy mechanized forces."[67] The ability to create "heavy" capable forces that are actually light and agile is the crux of the technological problem. Technology is further relied upon to lessen the burden of logistical support and to provide the heavy lift for enabling force deployment. While technology will be the enabler for Army transformation, the roadmap rightfully approaches the subject of innovation in order to develop and fully capitalize on its transformation. "The Army defines Transformation as a continuous process that creates a culture of innovation, which in turn seeks to exploit and shape the changing

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[65] Army Roadmap, 7.

[66] Department of the Army, Field Manual 1, *The Army*, (Washington, D.C., 2001), 22.

conduct of military competition."[68] Innovation is addressed as a concept of transformation that will yield a great return but one where much work remains to be done.[69]

The Objective Force concept does not create new core competencies, but it does alter the forced entry capability of the Army to include strategically mobile heavy capable forces. This capability is the prime joint ingredient for Army transformation. Certainly the FCS and associated systems will "transform" the process whereby sustained land combat occurs, but these changes are evolutional as a product of modernization. Only the ability to provide the Joint Force Commander with a more capable, strategically mobile force is valid for testing from the derived measures of merit. Hence, tangent and supporting concepts for Army transformation are not addressed further in this study.

The Objective Force, installed along three phases over a period of twenty years, conforms nicely with the derived measures of merit. The new force is designed for rapid response through strategic mobility and deployability. "We will design and structure Objective Force formations for rapid response and deployment, including the capability to conduct operational maneuver from strategic distances employing combined arms in decisive operations."[70] The roadmap espouses the capability for all FCS units to be universally capable and prepared for immediate responsiveness. Whereas the FCS may allow such versatility, the roadmap is not clear as to how the Army will provide the skill sets for the FCS operators and associated systems to achieve universal capabilities. Overall, however, the roadmap meets the measure of merit for a desired rapid response capability. The joint transformation is adding the combat lethality and "heaviness" to sustain the effort against an armored adversary.

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[67] Army Roadmap, 4.

[68] Army Roadmap, 1.

[69] Army Roadmap, 11.

[70] Army Roadmap, 7.

The Objective Force weighs favorably against the scalability measure of merit. "Smaller elements at lower echelons will be designed to employ functions and capabilities that currently reside in higher echelons, e.g. combined arms battalions with today's brigade-like capabilities."[71] The design of the force is intended to prevent the need for ad-hoc task force organizations. "Harnessing the power of information will enable Objective Force units to increase their lethality, precision, and survivability even while dramatically reducing their mass and 'foot print'."[72] These lighter forces benefit further from information by a realized agility complimented by highly educated, adaptive and innovative leaders.

Tactical agility and increased lethality of the Objective Force are derived from the power of information networking. In terms of survivability, the roadmap again meets a measure of merit based upon the infusion of information sharing. "The agility of our formations combined with the common operational picture is critical to maximize survivability."[73] "The Interim and, to an even greater extent, the Objective Force will leverage the power of information to replace the requirements for mass and armored volume. In the long term, developing situations out of contact and maneuvering to positions of advantage will characterize Objective Force operations."[74] Information sharing and the derived common operational picture produce an atmosphere for the Objective Force where superior knowledge and understanding yield supreme abilities on a predictive battlespace. Hence, the roadmap is highly dependent on joint networking for meeting the measures of scalability and survivability.

The roadmap stresses the procurement of the Objective Force (FCS) in order to provide a competent heavy land force for long range forced entry. "The Objective Force will have the capability to conduct operational maneuver from strategic distances as part of multidimensional

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[71] Army Roadmap, g-3.

[72] Army Roadmap, 7.

[73] Army Roadmap, g-6.

Joint operations, bypassing chokepoints as necessary."[75] The roadmap addresses meeting this measure of merit for light, medium, and "heavy" capable forces across the spectrum of operations. Specifically, legacy components retained through transformation will continue to provide light infantry (Rangers, 82d Airborne Division); interim components (Stryker Brigades) provide medium forces; Objective Force Units of Action provide responsiveness of Stryker Brigades but with the lethality of heavy armor.[76] Overall, the roadmap efficiently addresses long range forced entry in terms of providing land units for insertion. However, each of the forced entry units remains highly dependent on lift despite their particular weight or combat lethality.

The Army roadmap discusses all four measures of merit directly. Clearly the focus is attaining an Objective Force for land dominance. The details, however, of integrating that force with joint forces are not as clear. The roadmap is highly dependent on technology and a sustained information capability. The Objective Force is predicated on incorporating information for lethality and new forms of lift for rapid response and forced entry. The Objective Force concept and the interim forces involved in its development are clearly transformational in terms of Army lineage and way of thinking. The Army is on the verge of a revolution in terms of organization and thinking for employment of combat forces. "The Objective Force will use a 'train, alert, deploy' model vice the 'alert, train, deploy' method employed [today]."[77] This will provide the Army with an expeditionary mentality to readiness and deployment such as achieved previously by her sister services.

In summary, the Army roadmap met each of the measures of merit in establishing the capability for a rapid response, scalable, survivable force capable of a long range forced entry. This concept of the Objective Force meets the criteria and is deemed transformational for

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[74] Army Roadmap, f-3.

[75] Army Roadmap, b-3.

[76] Army Roadmap, 26-27.

incorporation with joint capabilities. Modernizing the entire force with FCS and related systems does not meet the test of joint transformation in and of itself as this merely modernizes and sustains previous core competencies and capabilities. While FCS may radically alter land combat, its incorporation in sustained land combat will be an evolutionary step that the joint commander will utilize or task in much the same way as is tasked a legacy heavy unit. In fact, the Objective Force White Paper implies that "networking" the force is more crucial than the vehicle involved.[78]

The Army roadmap underscored its own dependence on information sharing and highlighted this single aspect as the most "crucial enabler" of transformation.[79] "By substituting the power of information for mass, the Army created a basic capability to conduct operational maneuver at strategic distances."[80] In essence this also creates the roadmap's critical vulnerability. Clearly, the FCS will be highly capable when operating autonomously; however, the Objective Force as a system is leveraged on sharing information for survivability and lethality. Any loss of that information stream would be highly detrimental to system function. The FCS provides the Army with a vehicle capable of spanning the spectrum or blurring the distinction from light to heavy forces. As such, the Army stated that units employing FCS would be multi-mission ready and capable. The time available for training soldiers on each of these missions will likely be the limitation of achieving this objective. Overall, training and information vulnerability are two crucial avenues for further study of the Objective Force. Per this study's presumption that each roadmap achieves its technological aspirations, the rapid response Objective Force concept passes the first part of the transformational evaluation. The

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[77] Army Roadmap, g-4.

[78] Department of the Army, *Objective Force in 2015*, White Paper Final Draft, (Washington, D.C., 2002), 21.

[79] Army Roadmap, f-1.

[80] Army Roadmap, 16.

prescribed organizational and technological changes could provide the Joint Combatant

Commander with a new joint capability given the correct enablers.

U.S. AIR FORCE

The United States Air Force underwent major organizational changes following

Operation DESERT STORM. These changes predate the 'transformational' changes currently

sought by the Army (expeditionary by design). Specifically, the USAF combined Strategic Air

Command and Tactical Air Command into Air Combat Command (ACC). ACC was designed to

provide air forces for air expeditionary operations predicated by the dictum that the effects and

not the platform decide the mission.[81] The recognition that the USAF required an expeditionary

nature set the stage for its address of transformation; transformation for the USAF arguably began

with this reformulation of major commands.

The Air Force expeditionary concept gave birth to a mindset of transformation. As stated

by Major General David Deptula, "The Air Force Transformation plan will offer… near real time

global force application. Air Force Transformation yields system to execute in minutes with

precision, enabled by info and command and control architecture that will yield predictive

battlespace awareness."[82] Other preliminary notions of USAF transformation include decisive

precision weaponry, stealthy platforms, space and cyberspace dominance, and near real time

sensor to shooter targeting. The USAF Transformation Flight Path lists as its key goal to provide

a better network of sensors, decision makers, and shooters in battle to reduce time to less than 10

minutes in finding and destroying fleeting targets.[83]

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[81] David Deptula, "Air Force Transformation: Past, Present, and Future" (*Airpower Journal* Volume XV, no.3, Fall 2001), 2.

[82] David Deptula, "How Transformation Affects Modernization," Testimony before House Armed Services Committee (Washington, D.C., March 28, 2001).

[83] Department of the Air Force, The USAF Transformation Flight Path FY03-07, (Washington, D.C., 2002).

The fundamental concept stated in the Air Force Transformation Flight Path is that "ongoing, rapid advances in technology enable significant increases in military capability."[84] This reflects the fact that the Air Force previously altered its organization to one supporting expeditionary operations; the current transformational changes are predicated on technology to make airpower more strategically mobile and responsive. Hence, the focus of this roadmap is incorporating blossoming technologies into the organization vice altering the organization.

The Air Force plan espouses joint integration of technology to expand joint capabilities. "It [USAF] must integrate its expanding capabilities with those of the other Services and with non-military elements of national power."[85] The plan speaks volumes on the importance of joint cooperation in addressing future operational issues. It keys on global strike, C4ISR, Air Force fires, and missile defense while minimally addressing lift. The roadmap does not alter the service core competencies (Information Superiority, Global Attack, Precision Engagement, Rapid Global Mobility, Agile Combat Support, Air and Space Superiority).[86] Rather, it organizes seventeen transformational capabilities into seven concepts within the current core competencies. The proposed systems are heavily dependent on new hardware and software. "In sum, the Air Force must develop and field capabilities necessary to sustain its core competencies to include necessary command and control through which it employs them in the face of the changing security environment."[87] Transformational changes, dependent on technology, are also tied to an innovative cultural design. The Chief of Staff of the Air Force, General John Jumper, developed seven task forces for exploring the concepts of operations (CONOPS). "Constant innovation lays the groundwork for transformation by identifying new and sometimes revolutionary operational

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[84] USAF Flight Path, v.

[85] USAF Flight Path, v.

[86] USAF Flight Path, 6.

[87] USAF Flight Path, v.

concepts, evaluating the concepts and associated capabilities, and reporting results to the corporate Air force for decisions on resource allocation and implementation.'[88] The task forces are designed to allow individuals of all ranks spanning the breadth of the Air Force to foster innovation. While the task forces do not guarantee a culture of innovation, they open the door.

The seven task force CONOPS are: Air and Space Expeditionary Forces, Space and C4ISR, Global Strike, Global Response, Homeland Security, Global Mobility, and Nuclear Response. Each task force is responsible for developing the related transformational proposals as they relate to their CONOPS. The Air Force intends to achieve distributed idea growth from the task forces and their work on the capabilities.[89] The task forces are not directly tasked to cover the seventeen proposed transformational capabilities, but distinctions can be made as to which CONOPS has the priority of effort.

The Air and Space Expeditionary Task Force, Space and C4ISR Task Force, Nuclear Response Task Force, Homeland Defense Task Force, and Global Mobility Task Force appear geared to improve efficiencies in order to support current and future CONOPS. They are concerned with valuable joint capabilities, but do not necessarily initiate new joint capabilities or concepts.

The Air and Space Expeditionary Task Force encompasses providing joint fires as related in five of the seventeen proposed transformational capabilities. Specifically, the task force should address agile combat support (reduced forward footprint), specific and tailored effects, high volume attacks from fewer platforms, time-sensitive targeting with minimum risk to friendly forces, and effective and persistent air to ground operations beyond the range of enemy defenses.[90] Each of these five transformational capabilities is geared towards greater ability in

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[88] USAF Flight Path, vi.

[89] USAF Flight Path, iv.

[90] These are proposal numbers 7, 8, 13, 14, and 17 from the USAF Flight Path, page viii, but are not directly assigned under the CONOPS.

achieving current competencies and capabilities. None of the five satisfy the measures of merit as designed for this study. They are beneficial to the service and joint communities, but evolutional vice transformational.

The Space and C4ISR Task Force can be considered the great enabler task force. As such, the CONOPS deals with enhancing the joint picture and providing real-time information. This CONOPS mirrors eight of the seventeen proposed transformational capabilities. Space and C4ISR CONOPS should cover machine to machine near real time C2ISR, real time picture of the global battlespace, deep-looking target quality information anywhere anytime, defensive and offensive information warfare, protection of space assets, denial of access to space, and the ability to launch new and repair existing space vehicles.[91] These initiatives are all enablers of a robust joint C4ISR and contribute valuable capabilities to the joint team; however, they are evolutionary in concept from current capabilities and do not meet the study criteria. Whereas they are not of themselves transformational from a joint perspective, they do further the ability of the joint community to provide a network-centric force as proscribed by the DOD.

The Nuclear Response Task Force and the Homeland Defense Task Force seemingly have the least operability within the transformational propositions. Each equally meshes with the twelfth proposition of detecting ballistic and airborne cruise missiles and destroying them in flight.[92] This transformational capability is an evolutionary development stemming from the negation of the Anti-Ballistic Missile Treaty of 1972. It does not meet this study's measures of merit.

The Global Mobility Task Force is tasked with addressing lift requirements for the future. As such, it is concerned with providing joint airlift in order to carry out future joint concepts. This CONOPS matches the proposed transformational capability to rapidly develop and validate

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[91] These are proposal numbers 1,2,3,4,5,9,10, and 11 from the USAF Flight Path, page viii, but are not directly assigned under the CONOPS.

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time-phased force and deployment data (TPFDD) for any contingency in coordination with theater combatant commanders and rapidly deliver the right forces to the right locations at the right times.[93] Whereas increasing efficiencies and modernizing the process will certainly benefit the service and joint community, this initiative does not meet the measures of merit. Again, the proposed capability is an evolutionary development and a concept enabler from a joint perspective. There is clearly merit in a task force addressing the rapid development of TPFDDs and delivery of the right forces to the right locations, but this task force hinges on the joint community's ability to define those forces for the future.

The proposed Air Force transformational capabilities covered thus far are evolutionary. They attain greater performance of service and joint functions without creating new joint capabilities. From this delimitation, only two of seventeen proposed transformational capabilities and two CONOPS task forces remain.

The Global Strike Task Force (GSTF) and Global Response Task Force (GRTF) CONOPS both deal with the USAF global attack core competency. They cover down on the proposed transformational capabilities of rapidly-precisely-persistently attacking any target-anyplace-any time from anywhere, and round the clock stealthy operations in order to penetrate and defeat enemy air defenses and clear the path for follow-on forces.[94] The two task forces differ in that Global Strike is concerned with power-projection capabilities to distant regions for sustained presence while Global Response is reactionary in nature to events such as terrorism whereby fleeting targets must be serviced prior to their dispersal. Both proposed CONOPS rely upon rapid responsiveness and strategic mobility. Global persistence for each proposal requires

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[92] This is proposal number 12 from the USAF Flight Path, page viii, but it is not directly assigned under either of these CONOPS.

[93] This is proposal number 16 from the USAF Flight Path, page viii, but it is not directly assigned under the CONOPS.

[94] These are proposal numbers 6 and15 from the USAF Flight Path, page viii, but are not directly assigned under these CONOPS.

the development of fully networked systems as developed under the Space and C4ISR Task Force CONOPS. The roadmap covers rapid response, the first measure of merit, in depth; however, scant detail is given on sustaining the forces envisioned to carry out the CONOPS. The systems proposed to accomplish the capabilities include stealthy tactical fighters and other platforms not known for strategic range. They will require forward deployment to attain persistence. GRTF and GSTF both purport rapid self-deployment of air and space forces based on indigenous (to the service) tankers and lift. Many of these lift assets will in fact be joint assets for any joint deployment. Both global task force CONOPS rely on multiple types of air platforms for immediate response. As such, each CONOPS is highly tailorable. The roadmap acknowledges the need for scalable joint forces (second measure of merit) and addresses providing them. The agility of the air forces involved is enhanced by evolutionary developments of such weapons as the small diameter bomb whereby fewer platforms are required to service a greater number of targets. As did the Army, the Air Force espouses the use of joint networking and information dominance for increasing lethality and tactical agility. The Air Force directly addresses the desire for predictive battlespace stemming from a common operational picture. This picture provides the air platforms greater lethality and tactical agility that in turn meets the desired measure of merit for survivability. Both GRTF and GSTF directly address a long range forced entry capability. In essence, they only differ in continuance of the mission or persistence in the area. Backed by space, both CONOPS envision innovative risk attune commanders employing forces at a distance and speed not countered by potential adversaries.

Overall, the Air Force roadmap directly addresses each of the four measures of merit within the context of the GRTF and GSTF. Fifteen of the seventeen proposed transformational capabilities are evolutionary from a joint transformational perspective. The strength of the roadmap lies in initiatives to strengthen the joint team by networking air, space, and surface platforms. Numerous service-centric transformational concepts are present that will alter the service approach to current competencies without altering the way the service is tasked. The

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transformational blueprint is highly technologically dependent whereby its programs require extensive funding.

The Global Strike Task Force and the Global Response Task Force each meet the four measures of merit. They merit moving to the second phase of this study in determining the joint ability to apply the concepts of kicking down the door and applying precision engagement anywhere, anytime.

U.S. NAVY and MARINE CORPS

The Department of the Navy released the Naval Transformation Roadmap including transformational plans for both the Navy and Marine Corps. Prior to its release, the Department Secretary hinted that creating a cohesive, networked force would provide the real benefit of their transformation. The Honorable Gordon England was quoted as saying, "Buying more airplanes and ships isn't what the Navy needs to achieve its Transformation goals."[95] He suggested the Department would do better to invest in network centric warfare capabilities. Vice Admiral Timothy LaFleur, Commander Naval Surface Forces, asserted that the advantages of information superiority as applied to sea control, mobility, stealth, reach, precision, firepower, and persistence would define the surface force of 2025.[96] Combining these two statements leads to the assessment that networking existing and future platforms underscores the Navy's vision of transformation. General James Jones, Commandant of the Marine Corps, quipped of his service, "With all due respect to our history and our culture, and the wonderful 20th century, and everything that happened, the amphibious aspect of our history is in our past. The expeditionary

[95] Gordon England, Secretary of the Navy, quoted in Stephen Trimble, "Precision Weapons, Networks Trump Navy's Need for New Ships, England Says,"[Online] Available http://ebird.dtic.mil/Oct2002/e20021017precision.htm, October 17, 2002.

[96] Timothy W. LaFleur, "Change, Innovations, Transformation," [Online] Available http://ebird.dtic.mil/Sep2002/s20020905change.htm, September 5, 2002.

aspect is in the present and the future."[97] His statement leads to preliminary notions of Marines

inserted hundreds of miles inland without an amphibious assault to provide movement to

objective vice movement to contact. Though unified in the Department of the Navy, these two

services appeared to differ in transformational goals prior to the publishing of their roadmap.

The Naval Transformation Roadmap repeatedly cleared any misconceptions or

preliminary notions that the two services did not share the same vision. The roadmap draws

strength from the unity of effort between these two services. The stated focus for naval

transformation is to achieve "the capabilities for a networked, sea-based power projection force

which will enable joint force operations and assure access throughout the world."[98] This is

accomplished by connecting sensors, networks, weapons, decision aids and warriors from seabed

to space thereby accelerating the speed and accuracy of decisions across the spectrum of

command.[99] The fundamental concept of naval transformation is a fully integrated Navy-Marine

Corps team prepared to provide sustainable combat power. The "jointness" of the roadmap is

limited to the marriage of these two services. Integration of capabilities seldom addresses or

includes sister services for development of concepts. The proposed transformation centers on

increasing the effectiveness of fielded forces.

The Naval Transformation Roadmap does not alter the services' core competencies.

Rather, nine transformational capabilities are divided into three families for inclusion in existing

competencies. Sea Basing addresses accelerated deployment and employment time as well as

enhanced sea-borne positioning of joint assets; Sea Strike consists of persistent ISR, time

sensitive strike, information operations, and ship to objective maneuver (STOM); Sea Shield

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[97] James Jones, quoted in John Terino, "Revamped marine Corps Sees Sea Bases as Key, Jones Says," [Online] Available http://ebird.dtic.mil/Oct2002/e20021025revamped.htm, October 25, 2002.

[98] Department of the Navy, *Naval Transformation Roadmap*, (Washington, D.C., 2002), 45.

[99] Naval Roadmap, 4.

covers theater air and missile defense, littoral sea control, and homeland defense.[100] The readily apparent change to legacy capabilities includes a theater ballistic missile defense capability, sea basing for arrival and assembly, and ship to objective maneuver. The changes ascribed are highly dependent on a mix of hardware and software. Minimal changes in organization or force size are apparent. Technology provides the multitude of miniaturized sensors, smaller logistics footprint, and combat lethality desired by the department. The roadmap formally intends to create a culture of innovation. "Military transformation is a process that depends on a culture in which innovation is encouraged, nurtured and rewarded."[101] This innovation is called upon to instill success in the three families of naval transformation.

The Sea Basing family consists of two transformational capabilities. First and foremost is the desire to provide an accelerated deployment and employment schedule to "permit ground combat power projection within days rather than weeks or months without reliance on ports or airfields ashore."[102] This concept does not meet the measures of merit for this study, but it does provide an alternative enabler for rapid reaction, long range forced entry. The second concept of Sea Basing is enhanced sea-borne positioning of joint assets whereby the joint force commander can "expand the battlespace beyond enemy reach."[103] This concept does not meet the measures of merit and is evolutionary from current command assets afloat.

Defense is the key to the Sea Shield family. The first concept, theater air and missile defense, is an evolutionary project. It coalesced from the known capabilities of the Aegis cruiser and the negation of the 1972 Anti-Ballistic Missile Treaty. The concept certainly benefits the joint community but does not meet the measures of merit. The second concept, littoral sea control, is essentially a mission and not a capability per se. "Transformation will be focused on

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[100] Naval Roadmap, 1.

[101] Naval Roadmap, 5.

[102] Naval Roadmap, 24.

defeating anti-access capabilities in the form of small, fast surface combatants, quiet diesel submarines and sea mines through the development of netted, distributed sensors and improving the command and control of these missions."[104] The joint commander already relies upon the Navy in conjunction with joint assets to provide this capability. Whereas procuring a new shallow draft littoral ship may enhance the capability, the concept remains evolutional and not transformational from the measures of merit and definition of joint transformation. Essentially, littoral control is assumed under the core competency of command of the sea. The third concept, homeland defense, is again a mission and not necessarily a capability. "Naval forces help defend America's homeland by operating forward, serving as a first line of defense against both traditional nation-states and emerging non-state actors."[105] This concept is a restatement of current competencies and does not meet the measures of merit.

Sea Strike includes four proposed transformational capabilities. The first three (persistent ISR, time-sensitive strike, and information operations) are akin to the Air Force proposals for C4ISR and Air and Space Expeditionary CONOPS. They provide enablers for information sharing and dominance as well as precision engagement. They benefit the joint community in developing a common operational picture and providing joint precision fires, but they do not meet the measures of merit. The fourth concept, STOM, concerns the "ability to maneuver directly against objectives deep inland, without first establishing an initial beachhead or support bases ashore."[106] In effect, it seeks to eliminate the iron mountain ashore thereby providing rapid, responsive maneuver for tactical employment inland. The concept is designed solely for Marine air-ground task forces (MAGTFs), but could be incorporated with the Sea Basing concept of accelerated deployment and employment for a far-reaching joint capability. As written, the

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[103] Naval Roadmap, 25.

[104] Naval Roadmap, 19.

[105] Naval Roadmap, 8.

Expeditionary Strike Group draws its power from reallocating a portion of the rapidly growing Navy strike capability to complement and support Marines embarked on amphibious ships.[107] The concept bolsters existing Amphibious Groups and seeks to provide a deeper power projection/insertion capability. This concept aligns with the measures of merit.

The Naval Roadmap directly addresses the first measure of merit, rapid response, under the concept of STOM. The forces are envisioned as mobile and deployable on a moments notice. The limitation will be global positioning of the STOM forces and the number of MAGTFs embarked for STOM. This leads to the second question of deploying MAGTFs to the Sea Basing concept for rapid deployment and employment. When coupled, the efforts of the two concepts meet the needs of the strategic mobility and deployability constraint. Per current doctrine, MAGTFs are inherently scalable. Hence, the second measure of merit would be met by previous design. However, the roadmap also addresses this measure through a reduced logistics footprint making the forces lighter and more agile. Survivability, the third measure of merit, is provided by properly networking forces for tactical agility and increased lethality. The roadmap covers network-centric operations for all forces and the benefits of a common understanding of the battlespace. Survivability is further enhanced from the premise of the STOM concept of Sea Basing prior to maneuvering to objective. The forces are shielded until required for maneuver. The fourth measure of merit, long range forced entry, is a grey area for STOM. In developing the fourth measure, long range was envisioned as overcoming a strategic constraint. However, STOM effectively provides forward deployment of forces that creates an operational answer for the strategic problem. Hence, STOM meets the measure of merit for long range forced entry despite not necessarily inserting forces on strategic lift platforms.

The Naval Transformation Roadmap directly addressed the four measures of merit in relation to STOM. Enhanced deployment and employment garnered from a bolstered Sea Basing

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[106] Naval Roadmap, 3.

provides expansion for inclusion of joint forces. The remainder of the proposed transformational

capabilities and their families are beneficial yet evolutionary and do not meet the measures of

merit. They center on increased efficiencies, speed, lethality, and precision networking. The

strength of the roadmap is the Navy-Marine Corps interface of seaborne power. The weakness is

the integration of joint assets into naval concepts

JOINT ASSESSMENT/RESOLUTION

The rapid response, forced entry concept is clearly evident in the service roadmaps. The

roadmaps espoused numerous other concepts and capabilities that in turn were not deemed joint

transformational from this study's measures of merit. Part two of the evaluation process pits the

proposed new capabilities against the joint community's ability to employ and benefit from them.

In other words, if the service indeed gains that capability, will the joint commander be able to

employ it and support or sustain it as part of a joint operation. Hence, the analysis from a joint

perspective must answer whether the capability is adequately supported and if that capability will

truly be new and complementary to the existing joint construct.

The FCS empowered Objective Force defined and consumed the Army Transformation

Roadmap. The weapon system and force are highly networked for a common operational picture

based at the joint level for efficiently producing predictive battlespace awareness and

understanding. The concept of rapidly mobilizing and deploying the force is well derived in the

roadmap; however, the joint enablers required for this process are not provided currently nor

covered sufficiently in sister service roadmaps. "The Army needs support from the other

Services to achieve the levels of deployability required to provide these options to the National

Command Authorities."[108] The Army roadmap addresses numerous proposals for lift (shallow

draft high speed sealift, super short take-off and landing aircraft, heavy vertical take-off and

landing aircraft, theater support vessel, ultra-large airlifter) but does not address requirements for

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[107] Naval Roadmap, 3.

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an Objective Force forced entry. While the numbers of specific lift vehicles are not necessary, logistical throughput needs to be elaborated in order for the joint community to assess the attainment and employment of the capability. The Objective Force in 2015 White Paper states, "The 96/120/5 in 30 deployment timelines were only made possible when they were accepted and stated as Joint requirements."[109] The paper, written as if in reflection from the previous ten years of transformation up to 2015, asserts that sister services finally programmed their resources to support joint deployability of which joint means Objective Force. This sole assertion speaks volumes of the difficulties of incorporating a service capability for joint fruition. It is readily apparent that lift is the crucial enabler of this concept and that the joint community must decide the size and scope of rapid response forced entry forces in order to program sufficient lift. The USAF Transformational Flight Path lists an advanced theater transport and the CV-22 as lift platforms involved in its mobility transformation, but it does not address requirements from the Army Transformation Roadmap or the Objective Force in 2015 White Paper.[110] The Naval Transformation Roadmap does not address additional platforms for bolstering lift capacities or increasing the speed of deployment. It does develop the concept of Sea Basing for rapid deployment and employment, but it does not mention the lift required to carry out the concept nor the size of forces that could be accommodated.

It is accepted that, "Advanced airlift and high speed shallow draft sealift capabilities that reduce reliance on improved airfields and seaports and permit multiple entry points, even within austere theaters, afford a strategic advantage to the nation by increasing operational options."[111] It is not clear or accepted, however, that these new lift vehicles in and of themselves enable entry operations against denial or anti-access strategies. Likewise, Objective Force units or MAGTF

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[108] Army Roadmap, f-9.

[109] Objective Force 2015, 32.

[110] USAF Flight Path, ix.

ground forces inside lift vehicles do not provide forced entry; this ambiguity deserves careful attention as joint transformation plans coalesce. Lift is fundamental to all transformation concepts that adequately address future rapid response, forced entry capabilities.

The Air Force advocates the concept of rapid response, forced entry; however, it does so mainly in terms of applying combat airpower. The majority of the roadmap is concerned with expeditionary global fires. The USAF Transformation Flight Path designates a Global Mobility Task Force with the mission of providing rapid and effective air mobility support to theater combatant commanders; however, the two platforms addressed in the roadmap do not address future strategic lift.[112] These intra-theater airframes (CV-22 and Advanced Theater Transport) are complimentary to the existing strategic mobility fleet.[113] Neither of them fulfills the apparent desires of the Army roadmap.

The USAF GRTF and GSTF concepts, as portrayed in the USAF Transformation Flight Path, would not require joint support (they depend on "indigenous" lift). However, all service lift platforms are considered joint assets, and would certainly be tasked as such during contingency operations. The weapons platforms and support functions required for GRTF and GSTF require sufficient lift. Hence, it is disingenuous to imply that intra-service priorities will take precedence. Whereas this may have not been the intent, care should be taken to elaborate where the indigenous tankers or lift do not affect joint lift capability.

Lift capacity is the key to the joint value of STOM. The range, speed, and payload of existing helicopters and future CV-22s limit the deployment of the Sea Based force. Within the proposed airlift constraints, the STOM concept could deploy light infantry minus any large/heavy indigenous artillery. The MAGTF could continue to benefit from its air component based at sea, but limiting the indigenous ground fires results in a lighter forced entry force. While STOM met

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[111] Objective Force 2015, 9.

[112] USAF Flight Path, vii.

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the measures of merit, the concept does not necessarily provide a new capability for the joint commander. The joint community already benefits from Army light divisions capable of strategic mobility. STOM provides redundancy and forward presence against an uncertain world. It merits consideration for inclusion as part of the joint capabilities puzzle; however, it does not provide a new capability as currently fashioned.

The question of lift thus looms over the ability to insert an Army Objective Force unit, to employ the GRTF or GSTF, and to achieve a potent STOM. These service proposals offer distinct joint capabilities but vie for limited lift assets. Together the concepts stand to bolster true joint synergy in providing an expanded forced entry capability. Incorporating them into a joint transformation plan is essential to attaining them. The key for joint planners and programmers is to determine the future forced entry construct. Thereafter, the air, ground, sea, and space forces to fulfill the construct can be funded in the PPBS. The ability to utilize the capabilities proposed in the service roadmaps hinges on properly addressing lift as part of joint transformation. Modernization efforts such as uniformly outfitting the services with specific vehicles should be funded only after lift requirements. This process is required to pull strategic lift from the Cold War paradigm of forward basing to one truly supporting expeditionary joint operations. Upon careful examination, none of the roadmaps adequately address strategic lift.

ANSWER TO THE QUESTION

The service roadmaps provide several valuable concepts that require further joint deliberations for inclusion among existing joint capabilities. Currently, the roadmaps do not provide a coherent joint picture of where transformation is headed. There is great risk of capital expense without realization of any of these capabilities unless joint oversight commences rapidly. The answer to this study's question is in itself a grey area. Although the services could achieve their desires, joint limitations would certainly exist. The Objective Force and the GRTF/GSTF

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[113] USAF Flight Path, 29.

would compete for very limited strategic lift assets. Either one could be fully realized but little joint synergy would be achieved as the other sat idle. The joint community would not attain what Lt. Cols. Barbour and Hix found to be true in the Army War College's Dominant Warrior 2000 exercise. "At the operational level, the war game demonstrated the potential power of simultaneous build-up and execution vice sequentially applying service-specific capabilities. Simultaneous applying joint force capabilities early allowed U.S. and coalition partners to more rapidly initiate the fight on favorable terms, seize the initiative, set the operations pace and timing, build momentum and achieve decisions."[114] STOM, unless more capable lift that the CV-22 is fielded, equates to inserting an Army unit of similar size and covering it with joint fires. This capability already exists. STOM could provide greater responsiveness provided the task force was positioned in the correct theater, but it does not provide the capability from outside the theater. Sea Basing could prove a valuable enabler for future joint operations, but the concept as developed only pertains to Navy and Marine Corps forces.

The joint community could likely employ any of the three new forced entry concepts without addressing the Cold War paradigm lift capacity; however, it would not benefit from the synergy of a concerted effort. In order to perform the most stringent of forced entry, air and ground forces must be simultaneously employed for true joint synergy. GRTF/GSTF and Objective Force simultaneous deployment and employment will not occur without lift reform. Neither will a robust STOM.

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[114] Bo Barbour, Lt. Col. (Ret.), and Lt. Col. Bill Hix, USA, "Dominant Warrior: An Objective Force at War in 2015," (*Military Review*, January-February 2001), ???.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

> Never tell people how to do things, tell them what to do and they
> will surprise you with their ingenuity.
>
> General George S. Patton, Jr.

The services have very different approaches to transformation, yet they all recognize that information networking holds the key to true synergy. Their roadmaps are imaginative and explorative. They uncover numerous ideas and initiatives to further service transformation and to enable greater efficiencies for joint operations. Several concepts have clear logical ties across service lines. Programs such as ballistic missile defense and information networking for increased C4ISR should be fully integrated for the best results despite not meeting this study's measures of merit for joint transformation. The strength of the roadmaps is the forced entry proposals. These need to be fostered by the joint community and fully explored. "In the end, determining what is transformational comes down to qualitative judgment calls by informed senior leadership based on a set of agreed standards."[115] The derived joint transformation definition and measures of merit provide the basis for a joint set of standards. As such, they should be adopted for inclusion in future joint directives on transformation.

Transformation is about allocating valuable resources for procuring the right tools. "Service-oriented transformational initiatives must ultimately become joint initiatives that provide greater effectiveness for the warfighter."[116] The concepts of GRTF/GSTF, STOM, and Objective Force heavy-capable forced entry (fully analyzed in chapter four as passing the measures of merit) should be gleaned from the service proposals and incorporated into joint transformation directives. The DOD should prioritize them and seek appropriate funding prior to

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[115] USAF Flight Path, 4.

[116] USAF Flight Path, xii.

budgeting further modernization or service-centric transformation. Above all, the joint community must establish those concepts for further study among the services. As General Myers stated, "Finally, we must ensure that the Transformation process is characterized by unity of effort based on clearly defined roles and responsibilities throughout the DOD."[117] The release of a joint transformation roadmap should foster development and integration of an inter-service transformation.

This study magnifies the need to address strategic lift to provide a robust forced entry capability. Prior to committing to fielding the entire Objective Force or an Air Force of replicated Air Expeditionary Forces for GRTF/GSTF, the joint community must decide what level of force is truly required for that first punch. The joint perspective should be to procure limited numbers of ground and air platforms in order to pursue the joint capability of long range forced entry with heavy capable forces. None of the service proposed transformational capabilities was overtly wasteful. All certainly benefited their service and most benefited the joint community. Fiscal responsibility, however, dictates that these proposals compete for resources following funding of a robust forced entry capability.

The services are currently on separate transformation paths. The overall effect on joint transformation is uncertain and highly risky. Combat is certainly the wrong time to discover that transformation did not provide a synergistic effect. Proverbs 29:18 prophetically declares, "When there is no vision, the people perish." Currently, joint vision is scant for use by the services. The DOD must come on board and provide vision in terms of transformational concepts and a warfighting construct in order to ensure the services achieve joint transformation.

The question remains whether or not this third step in of America's military complex transformation evolution will solve the problem of "jointness". "The result of DoD's implementation of the Goldwater-Nichols Act has been continued evolution toward unified armed

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[117] Gen Myers Posture Statement, 7.

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forces."[118] Goldwater-Nichols, though seventeen years old, continues to impact and alter joint effectiveness. Currently, the joint community awaits further guidance along the transformational path. Evolution does not stop, but it does have distinct phases. The stop point for Goldwater-Nichols and the corresponding start point for the desired joint transformation will not be evident until a joint transformation roadmap is published.

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[118] Lovelace, 60.

APPENDIX

TRANSFORMATION DEFINITIONS

DOD Transformation Study Group (27 April 2001 report, pg 5): Changes in the concepts, organization, process technology application and equipment through which significant gains in operational effectiveness, operating efficiencies and/or cost reduction are achieved.

Network Centric Warfare (DOD white paper, page 2-2): The evolution and deployment of combat capabilities that provide revolutionary or asymmetric advantages to our forces.

Vice Adm. Arthur Cebrowski, USN (Ret.) Director of the DOD Office of Force Transformation, (Special DOD Brief on Force Transformation, page 3): I've expanded somewhat on the QDR… that is transformation is those continuing processes and activities which create new sources or power and yield profound increases in military competitive advantages as a result of new, or the discovery of, fundamental shifts in the underlying rule sets.

Maj. Gen. David Deptula, USAF, (Testimony before congress 28 March 2001): The Air Force defines transformation as fundamental change involving three principal elements and their interaction with one another: (1) advanced technologies that, because of the new capability they yield, enable (2) new concepts of operation that produce order of magnitude increases in our ability to achieve desired military effects, and (3) organizational change that codifies the changes in the previous element enhances our ability to execute our national security strategy… we cannot achieve meaningful transformation without integrating our expanding capabilities with those of the other service and elements of national power.

Hans Binnendijk (National Defense University, in *Transforming Americas Military*, page xvii): Military transformation is the act of creating and harnessing a revolution in military affairs. It requires developing new technologies, operational concepts, and organizational structures to conduct war in dramatically new ways.

Merriam-Webster's Online Dictionary: an act, process, or instance of transforming. Transforming is a change in composition, structure, outward form of appearance, character or condition.

USJFCOM, "What is Transformation" website: the process of changing form, nature or function. Within the United States military, transformation requires changing the form, or structure of our military forces; the nature of our military culture and doctrine supporting those forces; and streamlining our warfighting functions to more effectively meet the complexities of the new threats challenging our nation in the new millennium.

Andrew Krepinevich, Director of the Center for Strategic and Budgetary Assessments (Testimony before Congress): Transformation can be thought of as innovation on a grand scale. [It is] …typically associated with an RMA, in which a combination of technology, warfighting concepts and organizational change combine to bring about a dramatic leap in military effectiveness.

2001 QDR, page 29: Transformation results from the exploitation of new approaches to operational concepts and capabilities, the use of old and new technologies, and new forms of

organization that more effectively anticipate new or still emerging strategic and operational challenges and opportunities and that render previous methods of conducting war obsolete or subordinate.

U.S. Navy, *Naval Transformation Roadmap*, page 6: Navy transformation seeks to achieve a broad, sustained and decisive military competitive advantage over existing or potential adversaries. It comprises those continuing processes and activities that foster a climate of innovation in combining new and existing concepts, organizational arrangements, and technologies to result in profound increases in military power. This is accomplished by substantially extending boundaries of necessary military competencies and by discovering fundamentally new approaches to military operations. Additionally, true transformation is about seizing opportunities to create transformational capabilities by radically changing organizational relationships, implementing different concepts of warfighting, and inserting new technology to carry out operations in ways that profoundly improve current capabilities and develop future capabilities.

U.S. Air Force Transformation Flight Plan FY03-07, page v: A process by which the military achieves and maintains asymmetric advantages through changes in operational concepts, organizational structure, and/or technologies that significantly improve warfighting capabilities or ability to meet the demands of a changing security environment.

U.S. Army, *Transformation Roadmap*, page 1: A continuous process that creates a culture of innovation, which in turn seeks to exploit and shape the changing conduct of military competition.

ACRONYM GLOSSARY

ACC	Air Combat Command
C2ISR	command, control, intelligence, surveillance, and reconnaissance
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CAS	close air support
CBRNE	chemical, biological, radiological, nuclear and high yield explosives
CINC	Commander in Chief
CJCS	Chairman of the Joint Chiefs of Staff
CONOPS	concept of operations
CSIS	Center for Strategic and International Studies
DOD	Department of Defense
FCS	future combat system
GRTF	Global Response Task Force
GSTF	Global Strike Task Force
ISR	intelligence, surveillance, and reconnaissance
IT	information technologies
JCS	Joint Chiefs of Staff
JP	joint publication
JROC	Joint Requirements Oversight Council
JV 2020	Joint Vision 2020
MAGTF	Marine air-ground task force
PPBS	planning, programming, and budgeting system
QDR	Quadrennial Defense Review
RMA	revolution in military affairs
SF	special forces
STOM	ship to objective maneuver
TPFDD	time-phased force and deployment data
USA	U.S. Army
USAAC	U.S. Army Air Corps
USAF	U.S. Air Force
USCENTCOM	U.S. Central Command
USJFCOM	U.S. Joint Forces Command
USMC	U.S. Marine Corps
USN	U.S. Navy

BIBLIOGRAPHY

ARTICLES

Barbour, Bo, Lt. Col., USA (Ret.), and Lt. Col. Bill Hix, USA. "Dominant Warrior: An Objective Force at War in 2015." *Military Review*, January-February 2001.

Bosker, A.J., SSgt, USAF. "General Officer Explains Transformation." [Online] Available http://www.af.mil/news/Oct2002/100402162.shtml, October 10, 2002.

Bowman, Tom. "Army Chief to Keep Seeking Shift to More-Mobile Force." [Online] Available http://ebird.dtic.mil/Oct2002/e20021024chief.htm, October 24, 2002.

Brinkley, C. Mark. "Year that Changed the Corps." [Online] Available http://ebird.dtic.mil/Sep2002/s20020905year.htm, September 5, 2002.

Brown, Malinda. "Cebrowski: Transformation Should Initially Skip Acquisition Realm." [Online] Available http://ebird.dtic.mil/Nov2002/s20021125137921.html, November 25, 2002.

Burger, Kim. "US DOD Presses for Joint Operations Concept." [Online] Available http://ebird.dtic.mil/Sep2002/s20020923presses.htm, September 23, 2002.

Clark, Emily. "A Path Toward Transformation: A Conversation with Gen. Charles E. Wilhelm, USMC (Ret.)." Center for Defense Information Military Reform Project. [Online] Available http://www.cdi.org/mrp.cfm, January 10, 2002.

"Beyond Goldwater-Nichols: Defense Reform for a New Strategic Era, Project Summary." Center for Strategic and International Studies, 2002.

Colarusso, Laura M. "Global Response Task Force Targets Terrorist Threats Abroad." [Online] Available http://ebird.dtic.mil/Sep2002/s20020906global.htm, September 6, 2002.

Colarusso, Laura M. "Global Strike CONOPS to Exploit Capabilities from Sister Services." [Online] Available http://ebird.dtic.mil/Sep2002/s20020906conops.htm, September 6, 2002.

Costa, Keith J. "JFCOM Research Team Forges Ahead to Hasten Military Transformation" [Online] Available http://ebird.dtic.mil/Aug2002/s20020829jfcom.htm, August 29, 2002.

Costa, Keith J. "Top Pentagon Official Urges Quick Action On Training Transformation" [Online] Available http://ebird.dtic.mil/Nov2002/s20021161126401.html, November 21, 2002.

Crawley, Vince. "Myers: Military Must Transform While Continuing to Fight." [Online] Available http://ebird.dtic.mil/Sep2002/e20020909myers.htm, September 9, 2002.

Deptula, David A. "Air Force Transformation: Past, Present, and Future." *Airpower Journal*

Vol. XV, no. 3, Fall 2001.

Donnelly, Tom. "Rumsfeld the Radical" [Online] Available
http://ebird.dtic.mil/Sep2002/e20020903radical.htm, September 9, 2002.

Duffy, Thomas. "Capabilities-Based Reviews Begin to Bear Fruit, Roche Says" [Online]
Available http://ebird.dtic.mil/Aug2002/s20020830fruit.htm, August 30, 2002.

Erwin, Sandra. "Incompatible Battle-Command Systems: There's No Easy Fix" [Online]
Available http://ebird.dtic.mil/Aug2002/s20020826inc.htm, August 26, 2002.

Garamore, Jim. "Largest Military Experiment to Test Transformation Theories." [Online]
Available http://defenselink.mil/news/Jul2002/n07182002_2002087185.html,
July 18, 2002.

Gilmore, Gerry J. "Change U.S. Military Now, DOD Transformation Czar Urges." [Online]
Available http://www.defenselink.mil/news/Jul2002/n07112002_200207111.html,
August 26, 2002.

Grossman, Elaine M. "Upcoming F-22 Tests to Demo Anti-Access Role, but No Attack
Regimes." [Online] Available http://ebird.dtic.mil/Aug2002/s20020829upcoming.htm,
August 29, 2002.

"An Interview with the Director." Information Technology Association of America. [Online]
Available http://ebird.dtic.mil/Oct2002/s20021030interview.htm, October 30, 2002.

Isby, David. "Bush's Ranch Hands." [Online] Available
http://ebird.dtic.mil/Aug2002/e20020823ranch.htm, August 23, 2002.

Jackson, Joab. "Network-Centric Warfare Comes of Age." [Online] Available
http://ebird.dtic.mil/Oct2002/s20021024age.htm, October 24, 2002.

Keeter, Hunter. "DOD Pressures for Transformation in Aircraft Carrier Program." [Online]
Available http://ebird.dtic.mil/Oct2002/s20021024dod.htm, October 24, 2002.

Keeter, Hunter. "Rumsfeld: War Against Terror Provides 'Impetus' for Transformation"
[Online] Available http://ebird.dtic.mil/Aug2002/e20020821war.htm, August 21, 2002.

Keeter, Hunter. "Transformation Turns Up Heat on Programs, Officials Say." [Online]
Available http://ebird.dtic.mil/Sep2002/s20020906heat.htm, September 6, 2002.

Kozaryn, Linda D. "Demystifying 'Transformation'." [Online] Available
http://www.defenselink.mil/news/Aug2002/n08142002_200208141.html,
August 24, 2002.

Kozaryn, Linda D. "Rumsfeld Says Transformation Vital to Global Stability." [Online]
Available http://www.defenselink.mil/news/Aug2002/n08082002_200208081.html,
August 8, 2002.

Krepinevich, Andrew F. "A New War Demands A New Military." [Online] Available
http://ebird.dtic.mil/Sep2002/e20020910anew.htm, September 10, 2002.

LaFleur, Timothy W. "Change, Innovations, Transformation." [Online] Available
http://ebird.dtic.mil/Sep2002/s20020905change.htm, September 5, 2002.

Loeb, Vernon. "A Force Changes, from the Inside Out." [Online] Available
http://ebird.dtic.mil/Sep2002/e20020926aforce.htm, September 27, 2002.

Ma, Jason. "Services, Joint Staff Forming Joint Operational Concepts." [Online] Available
http://ebird.dtic.mil/Nov2002/s20021125137922.html, November 26, 2002.

Mahnken, Thomas G. "Transforming the U.S. Armed Forces: Rhetoric or Reality?" *Naval War
College Review, Vol. LIV No 3*, Summer 2001, pp 85-99. [Online] Available
www.nwc.navy.mil/press/review/2001/summer/art6-su1.pdf, October 5, 2002.

Maze, Rick. "Top Marine Blasts Joint Chiefs, Spurs Inquiry." [Online] Available
http://ebird.dtic.mil/Sep2002/s20020930blasts.htm, September 30, 2002.

Morris, Jefferson. "OSD Striving to Define 'Transformation' for Military Personnel" [Online]
Available http://ebird.dtic.mil/Sep2002/e20020906osd.htm, September 6, 2002.

O'Hanlon, Michael. "Three Months to Baghdad." [Online] Available
http://ebird.dtic.mil/Aug2002/e20020830three.htm, August 30, 2002.

Owens, Mackubin Thomas. "Let's Not Rig Our War Games." [Online] Available
http://ebird.dtic.mil/Aug2002/e20020829lets.htm, August 29, 2002.

Peters, Katherine McIntire. "Army Chief Says Logistics Reform is Vital" [Online] Available
http://ebird.dtic.mil/Sep2002/e20020905logistics.htm, September 5, 2002.

Rhem, Kathleen T. "Rumsfeld Tells Pentagon Workers Transformation Critical to Success."
[Online] Available
http://www.defenselink.mil/news/Aug2002/n08062002_200208062,html,
August 26, 2002.

Roos, John G. "Army Transformation." [Online] Available
http://ebird.dtic.mil/Oct2002/s20021025transformation.htm, October 28, 2002

Robinson, Colin. "Defining Transformation?" Center for Defense Information Military Reform
Project. [Online] Available http://www.cdi.org/mrp/transform-pre.cfm,
October 17, 2002.

Schmitt, Eric. "U.S. Plan for Iraq Is Said to Include Attack on 3 Sides." [Online] Available
http://www.nytimes.com/2002/07/05/international/middleeast/o5IRAQ.html,
August 24, 2002.

Schmitt, Eric, and Thom Shanker. "Service Chiefs Say Afghan Battle Will Help Military Get
Smarter, Stronger and Faster." [Online] Available
http://ebird.dtic.mil/Sep2002/e20020910faster.htm, September 10, 2002.

Shalal-Esa, Andrea. "Army Sees No Challenge to Stryker Combat Vehicle." [Online] Available
http://ebird.dtic.mil/Aug2002/e20020829challenge.htm, August 29, 2002.

Shanker, Thom. "Army Takes On Critics of an Armored Vehicle." [Online] Available
http://ebird.dtic.mil/Oct2002/e20021029critics.htm, October 29, 2002.

Stephens, Hampton. "JEFX Shows Viability of Reducing Targeting Time to Below 10 Minutes."
[Online] Available http://ebird.dtic.mil/Sep2002/e20020906jefx.htm, September 6, 2002.

Svitak, Amy. "Disjointed First Steps." [Online] Available
http://ebird.dtic.mil/Aug2002/e20020819disjointed.htm, August 19, 2002.

Svitak, Amy. "Clear Role Eludes U.S. Transformation Office." [Online] Available
http://ebird.dtic.mil/Sep2002/s20020924clear.htm, September 24, 2002.

Svitak, Amy. "New U.S. Transformation Guidance Expected." [Online] Available
http://ebird.dtic.mil/Nov2002/s20021112expected.htm, November 12, 2002.

Svitak, Amy. "Rumsfeld Memo: Streamline Pentagon-Congress Relations." [Online] Available
http://ebird.dtic.mil/Sep2002/e20020919memo.htm, September 23, 2002.

Svitak, Amy. "Joint Staff Study: Unify U.S. Transformation." [Online] Available
http://ebird.dtic.mil/Sep2002/s20020916unify.htm, September 23, 2002.

Svitak, Amy. "Pending Pentagon Guidance Slows Transformation." [Online] Available
http://ebird.dtic.mil/Sep2002/s20020910pending.htm, September 10, 2002.

Svitak, Amy. "Pentagon Crafting a Framework for Joint Operations." [Online] Available
http://ebird.dtic.mil/Oct2002/s20021029crafting.htm, October 29, 2002.

Svitak, Amy. "U.S. Transformation Czar Cites 3 Keys to Change." [Online] Available
http://ebird.dtic.mil/Oct2002/s20021029joint.htm, October 29, 2002.

Terino, John. "Revamped Marine Corps Sees Sea Bases as Key, Jones Says." [Online] Available
http://ebird.dtic.mil/Oct2002/e20021025revamped.htm, October 25, 2002.

Towell, Pat. "Rumsfeld Defense Plan on Track as Senate Clears Spending Bill." [Online]
Available http://ebird.dtic.mil/Oct2002/e20021021track.htm, October 21, 2002.

Trimble, Stephen. "Precision Weapons, Networks Trump Navy's Need for New Ships, England
Says." [Online] Available http://ebird.dtic.mil/Oct2002/e20021017precision.htm,
October 17, 2002.

Winograd, Erin Q. "Gingrich Tells Top DOD Officials Army's Stryker Shouldn't Be Fielded"
[Online] Available http://ebird.dtic.mil/Sep2002/e20020930gingrich.htm,
September 30, 2002.

Winograd, Erin Q. "Despite Increased Spending, Army Faces $35 Billion Gap in 2004-09
POM." [Online] Available http://ebird.dtic.mil/Sep2002/s20020903pom.htm,
September 3, 2002.

BOOKS

Alberts, David S., John J. Garstka, and Frederick P. Stein. *Network Centric Warfare: Developing and Leveraging Information Superiority*, 2nd Edition (Revised). Washington, D.C.: CCRP Press, 1999.

Binnendijk, Hans, ed. *Transforming Americas Military.* Washington, D.C.: National Defense University Press, 2002.

Clark, Wesley, General, USA (Ret.). *Waging Modern War.* New York: Perseus Books Groups, 2001.

Clausewitz, Carl von. *On War.* Edited and translated by Michael Howard and Peter Paret. Princeton, New Jersey: Princeton University Press, 1976.

Macgregor, Douglas. *Breaking the Phalanx: A New Design for Landpower in the 21st Century.* London: Praeger in cooperation with the Center for Strategic and International Studies, 1997.

Gordon, Michael R., and General Bernard E. Trainor, USMC (Ret.). *The General's War.* New York: Little, Brown and Company, 1995.

Merriam-Websters Unabridged Online Dictionary. [Online] Available http://www.m-w.com/cgi-bin/dictionary, December 5, 2002.

McKnight, Clarence E. *Control of Joint Forces.* Fairfax, Virginia: AFCEA International Press, 1989.

Millett, Allan R., and Peter Maslowski. *For the Common Defense: A Military History of the United States of America.* New York: Free Press, 1984.

Schneider, Barry R. and Larry E. Grinter, ed. *Battlefield of the Future.* Maxwell AFB, Alabama: Air University Press, 1998.

Senge, Peter M. *The Fifth Discipline*. New York: Doubleday, 1990.

Shufelt, James W., Jr. "Improving the Strategic Responsiveness of the Transforming Force." In *Army Transformation: A View from the U.S. Army War College*, ed. Willamson Murray. Carlisle Barracks, Pennsylvania: U.S. Army War College, 2001.

Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations.* 6th ed. Chicago: University of Chicago Press, 1996.

Waldrop, Mitchell M. *Complexity*. New York: Simon and Schuster, 1998.

MONOGRAPHS/THEORETICAL PAPERS

Lovelace, Douglas C., Jr. "Unification of the United States Armed Forces: Implementing the 1986 Department of Defense Reorganization Act." Strategic Studies Institute, Carlisle Barracks, Pennsylvania: U.S. Army War College, 1996.

Tukhachevskiy, Mikhail. "New Problems in Warfare." AMSP Course 1 SAMS Reprint from U.S. Army War College Art of War Colloquium (Carlisle Barracks, Pennsylvania: U.S. Army War College, 1983).

Schneider, James J. "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art." AMSP Theoretical Paper Number 4. Fort Leavenworth, KS: School of Advanced Military Studies, 1991.

Wass de Czege, Huba, and Richard Hart Sinnreich. "Conceptual Foundations of a Transformed Army." The Institute of Land Warfare, Land Warfare Paper #40. Arlington, Virginia: Association of the U.S. Army, March 2002.

U.S. GOVERNMENT DOCUMENTS AND RELEASES

U.S. Code, Congressional Service: 81st Congress First Sessions. *National Security Act Amendments of 1949*. St. Paul, MN: West Publishing Co., 1949.

_____. 99th Congress Second Sessions. *Goldwater-Nichols Department of Defense Reorganization Act of 1986*. St. Paul, MN: West Publishing Co., 1986.

U.S., Department of the Air Force. *Air Force Doctrine Document 1-2, Air Force Glossary*. Washington, D.C.: Government Printing Office, 1999.

_____. *Air Force Doctrine Document 1, Air Force Basic Doctrine*. Washington, D.C.: Government Printing Office, 1997.

_____. *The USAF Transformation Flight Plan FY03-07*. Washington, D.C.: Government Printing Office, 2002.

U.S., Department of the Army. *Field Manual (FM) 3-0, Operations*. Washington, D.C.: Government Printing Office, 2000.

_____. *FM 1, The Army*. Washington, D.C.: Government Printing Office, 2001.

_____. *FM 101-5-1/MCRP 5-2A, Operational Terms and Graphics*. Washington, D.C.: Government Printing Office, 1997.

_____. *Concepts for the OBJECTIVE FORCE White Paper*. Washington, D.C.: Government Printing Office, 2000.

_____. *2002 Army Modernization Plan White Paper*. Washington, D.C.: Government Printing Office, 2002.

_____. *The OBJECTIVE FORCE in 2015, Final Draft White Paper*. Washington, D.C.: Government Printing Office, 2002.

_____. *Transformation Roadmap*. Washington, D.C.: Government Printing Office, 2002.

_____. *Transformation Campaign Plan*. Washington, D.C.: Government Printing Office,

2001.

U.S., Department of Defense. *Joint Doctrine Capstone and Keystone Primer.* Washington, D.C.: Government Printing Office, 2001.

_____. *Joint Publication (JP) 1-02, Department of Defense Dictionary of Military and Associated Terms.* Washington, D.C.: Government Printing Office, 2002.

_____. *JP 0-2, Unified Action Armed Forces.* Washington, D.C.: Government Printing Office, 2001.

_____. *JP 1, Joint Warfare of the Armed Forces of the United States.* Washington, D.C.: Government Printing Office, 2000.

_____. *JP 3-0, Doctrine for Joint Operations.* Washington, D.C.: Government Printing Office, 1995.

_____. *JP 3-33, Joint Force Capabilities.* Washington, D.C.: Government Printing Office, 1999.

_____. *JP 5-0, Doctrine for Planning Joint Operations.* Washington D.C.: Government Printing Office, 1995.

_____. *JP 5-00.1, Joint Doctrine for Campaign Planning.* Washington, D.C.: Government Printing Office, 2002.

_____. *Joint Staff Joint Doctrine Encyclopedia.* Washington, D.C.: Government Printing Office, 1997.

_____. *Department of Defense Directive 5025.12, Standardization of Military and Associated Terminology.* Washington, D.C.: Government Printing Office, 1989.

_____. *An Evolving Joint Perspective: U.S. Joint Warfare and Crisis Resolution In The 21st Century.* Washington, D.C.: Government Printing Office, 2003.

_____. *Background Briefing on the Defense Planning Guidance.* [Online] Available http://www.defenselink.mil/news/May2002/t05102002_t0510dpg.html, October 10, 2002.

_____. *Network Centric Warfare, DOD Report to Congress.* [Online] Available http://www.c3i.osd.mil/NCW/, October 17, 2002.

_____. *Special Briefing on Force Transformation* (presented by Rear Adm. Arthur Cebrowski, USN (Ret.), Director, DOD Force Transformation). [Online] Available http://www.defenselink.mil/news/Nov2001/t11272001_t1127ceb.html, November 27, 2001.

_____. *Secretary Rumsfeld Interview with the National Journalists Roundtable.* [Online] Available http://www.defenselink.mil/news/Aug2002/t08072002_t0805sd.html, August 26, 2002.

_____. *Memorandum For Secretaries of the Military Departments: Legislative Priorities for Fiscal Year 2003.* Washington D.C.: Office of the Secretary of Defense, September 17, 2002.

_____. *2001 Quadrennial Defense Review Report.* Washington, DC: Government Printing Office, 2001.

_____. *Guidance and Terms of Reference for the 2001 Quadrennial Defense Review.* Washington, DC: Government Printing Office, 2001.

_____. *Joint Vision 2020.* [Online] Available http://www.dtic.mil/JV2020/JV2020.pdf, September 23, 2002.

_____. *Joint Vision 2010.* [Online] Available http://www.dtic.mil/JV2020/history/JV2010.pdf, September 23, 2002.

_____. *21st Century Challenges.* [Online] Available http://www.dtic.mil/JV2020/history/challenges.ppt, September 23, 2002.

_____. *Organizational Development of the Joint Chiefs of Staff, 1942-1989.* Historical Division, Joint Secretariat, Joint Chiefs of Staff. Washington, D.C.: Government Printing Office, November 1989.

_____. *Concept for Future Joint Operations*, [Online] Available http://www.dtic.mil/JV2020/history/cfjoprn1.pdf, September 23, 2002.

_____. *Desired Operational Capabilities*, [Online] Available http://www.dtic.mil/JV2020/history/cdoc.doc, September 23, 2002.

_____. *Joint Vision Implementation Master Plan (CJCSI 3010.02a).* [Online] Available http://www.dtic.mil/JV2020/history/jimp.pdf, September 23, 2002.

_____. *Annual Report to the President and the Congress.* Washington, D.C.: Government Printing Office, April 2002.

_____. *Transformation Military Operational Capabilities, Transformation Study Group Report April 27 2001.* [Online] Available http://www.defenselink.mil/news/Jun2001/d20010621transrep.pdf, September 23, 2002.

U.S., Department of the Navy. *Expeditionary Maneuver Warfare: Marine Corps Capstone Concept*. Washington, D.C.: Government Printing Office, 2002.

_____. *Naval Transformation Roadmap.* Washington, DC: Government Printing Office, 2002.

_____. *Marine Corps Strategy 21.* Washington, DC: Government Printing Office, 2000.

_____. *Marine Corp Doctrinal Publication 1-0, Marine Corps Operations.* Washington, DC: Government Printing Office, 2001.

_____. *Naval Doctrine Publication 1, Naval Warfare.* Washington, DC: Government

Printing Office, 1994.

U.S., Department of State. *International Information Programs: Defense Department Report on Defense Transformation Study.* [Online] Available http://usinfo.state.gov/topical/pol/arms/stories/01061201.htm, August 26, 2002.

U.S. Joint Forces Command. *"What is Transformation?"* [Online] Available http://www.jfcom.mil/about/transform.html, August 24, 2002.

_____. "*A Concept for Rapid Decisive Operations.*" [Online] Available http://www.jfcom.mil/about/transform/rdo.html, 31 July 2001.

_____. "*Joint Operational Warfighting: A Warfighting Construct for the Next Decade.*" [Online] Available http://www.jfcom.mil/about/transform/jow.html, November 24, 2002.

SPEECHES/TESTIMONY

Bush, George W., President of the United States of America. Remarks at the U.S. Naval Academy Commencement. USNA Stadium, Annapolis, Maryland: May 25, 2001. [Online] Available http://www.whitehouse.gov/news/releases/2001/05/20010525-1.html, October 12 2002.

Deptula, David A., Major General, USAF. *"How Transformation Affects Modernization."* Testimony before House Armed Services Committee, Military Procurement Subcommittee, Washington, D.C., March 28 2001. [Online] Available https://wwwmil.acc.af.mil/focusareas/doc/transformation/4.%20how%20transformation%20effects%20modernization.doc, October 25, 2002.

Krepinevich, Andrew F., Executive Director, Center for Strategic and Budgetary Assessments. *"Defense Transformation."* Testimony before U.S. Senate Committee on Armed Services, Washington, D.C.: April 9, 2002. [Online] Available www.senate.gov/armed_services/statement/2002/april/krepinevich.pdf, October 25, 2002.

Krepinevich, Andrew F., Executive Director, Center for Strategic and Budgetary Assessments. *"Emerging Threats, Revolutionary Capabilities and Military Transformation."* Testimony before U.S. Senate Armed Services Subcommittee on Emerging Threats and Capabilities, Washington D.C., March 5, 1999.

Myers, Richard B. General, USAF, Chairman of the Joint Chiefs of Staff. "Transformation". Speech delivered during Town Hall Los Angeles Luncheon at the Ronald Reagan International Trade Center, Washington D.C.: September 27, 2002.

Myers, Richard B., General, USAF, Chairman of the Joint Chiefs of Staff. Posture Statement. Text prepared for Senate Armed Services Committee, February 5 2002. [Online] available http://www.dtic.mil/jcs/chairman/posture_statement.html, December 8, 2002.

Rumsfeld, Donald, U.S. Secretary of Defense, with Rear Admiral (Ret.) Arthur Cebrowski, USN, Office of DOD Transformation, General Tommy Franks, USA, Commander USCENTCOM, and General Peter Pace, USMC, Vice Chairman of Joint Chiefs of Staff. *"21st Century Transformation."* Remarks as delivered to National Defense University,

Fort McNair, Washington, D.C., January 31, 2002.

Shinseki, Eric, General, USA. Chief of Staff of Army Remarks at D.D. Eisenhower Luncheon of the Association of the U.S. Army Convention, Washington, D.C., October 22, 2002.

Wolfowitz, Paul, Deputy Secretary of Defense, with General Peter Pace, USMC, VCJCS, General William Kernan, USA, Commander USJFCOM, and Rear Admiral Arthur Cebrowski, USN (Ret.), Office of DOD Force Transformation. "Military Transformation." Testimony before Senate Armed Services Committee. Washington, D.C.: April 9, 2002. [Online] Available http://www.defenselink.mil/speeches/2002/s20020409-depsecdef1.html, October 25, 2002.